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REPORT

OF

THE SECRETARY OF STATE,

UPON

WEIGHTS AND MEASURES,

PREPARED IN OBEDIENCE TO A RESOLUTION OF THE HOUSE OF REPRESENTATIVES OF THE FOURTEENTH OF DECEMBER, 1819.

FEBRUARY 22, 1821.

Read, and ordered to lie on the table

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By an uniformity of *identity*, is meant a system founded on the principle of applying only one unit of weights to all weighable articles, and one unit of measures of capacity to all substances, thus measured, liquid or dry.

By an uniformity of *proportion*, is understood a system admitting more than one unit of weights, and more than one of measures of capacity; but in which all the weights and measures of capacity are in a uniform proportion with one another.

Our present existing weights and measures are, or originally were, founded upon the uniformity of proportion. The new French metrology is founded upon the uniformity of identity.

And, in reference to each of these circumstances, and to each in combination with all, or either of the others, uniformity may be more or less extensive, partial, or complete.

Measures and weights are the instruments used by man for the comparison of quantities, and proportions of things.

In the order of human existence upon earth, the objects which successively present themselves, are man—natural, domestic, civil society, government, and law. The want, at least, of measures of length, is founded in the physical organization of individual man, and precedes the institution of society. Were there but one man upon earth, a solitary savage, ranging the forests, and supporting his existence by a continual conflict with the wants of his nature, and the rigor of the elements, the necessities for which he would be called to provide would be *food, raiment, shelter*. To provide for the wants of food and raiment, the first occupation of his life would be the chase of those animals, the flesh of which serves him for food, and the skins of which are adaptable to his person for raiment. In adapting the raiment to his body, he would find at once, in his own person, the want and the supply of a standard measure of length, and of the proportions and subdivisions of that standard.

But, to the continued existence of the human species, two persons of different sexes are required. Their union constitutes natural society, and their permanent cohabitation, by mutual consent, forms the origin of domestic society. Permanent cohabitation requires a common place of abode, and leads to the construction of edifices where the associated parties, and their progeny, may abide. To the construction of a dwelling place, superficial measure becomes essential, and the dimensions of the building still bear a natural proportion to those of its destined inhabitants. Vessels of capacity are soon found indispensable for the supply of water; and the range of excursion around the dwelling could scarcely fail to suggest the use of a measure of itinerary distance.

Measures of *length*, therefore, are the wants of individual man, independent of, and preceding, the existence of society. Measures of surface, of distance, and of capacity, arise immediately from domestic society. They are wants proceeding rather from social, than from individual, existence. With regard to the first, *linear* measure, nature in creating the want, and in furnishing to man, within himself,

the means of its supply, has established a system of numbers, and of proportions, between the man, the measure, and the objects measured. Linear measure requires only a change of direction to become a measure of circumference; but is not thereby, without calculation, a measure of surface. Itinerary measure, as it needs nothing more than the prolongation or repetition of linear measure, would seem at the first view to be the same. Yet this is evidently not the progress of nature. As the want of it originates in a different stage of human existence, it will not naturally occur to man, to use the same measure, or the same scale of proportions and numbers, to clothe his body, and to mark the distance of his walks. On the contrary, for the measurement of all objects which he can lift and handle, the fathom, the arm, the cubit, the hand's-breadth, the span, and the fingers, are the instruments proposed to him by nature; while the pace and the foot are those which she gives him for the measurement of itinerary distance. These natural standards are never, in any stage of society, lost to individual man. There are probably few persons living who do not occasionally use their own arms, hands, and fingers, to measure objects which they handle, and their own pace to measure a distance upon the ground.

Here then is a source of *diversity*, to the standards even of linear measure, flowing from the difference of the relations between man and physical nature. It would be as inconvenient and unnatural to the organization of the human body to measure a bow and arrow for instance, the first furniture of solitary man, by his foot or pace, as to measure the distance of a day's journey, or a morning's walk to the hunting ground, by his arm or hand.

Measures of capacity are rendered necessary by the nature of fluids, which can be held together in definite quantities only by vessels of substance more compact than their own. They are also necessary for the admeasurement of those substances which nature produces in multitudes too great for numeration, and too minute for linear measure. Of this character are all the grains and seeds, which, from the time when man becomes a tiller of the ground, furnish the principal materials of his subsistence. But nature has not furnished him with the means of supplying this want in his own person. For this measure he is obliged to look abroad into the nature of things; and his first measure of capacity will most probably be found in the egg of a large bird, the shell of a cetaceous fish, or the horn of a beast. The want of a common standard not being yet felt, these measures will be of various dimensions; nor is it to be expected that the thought will ever occur to the man of nature, of establishing a proportion between his cubit and his cup, of graduating his pitcher by the size of his foot, or equalizing its parts by the number of his fingers.

Measures of length, once acquired, may be, and naturally are, applied to the admeasurement of objects of surface and solidity; and hence arise new diversities from the nature of things. The connection of linear measure with *numbers*, necessarily, and in the first instance, imports only the first arithmetical rule of numeration, or ad-

dition. The mensuration of surfaces, and of solids, requires the further aid of multiplication and division. Mere numbers, and mere linear measure, may be reckoned by addition alone; but their application to the surface can be computed only by multiplication. The elementary principle of decimal arithmetic is then supplied by nature to man within himself in the number of his fingers. Whatever standard of linear measure he may assume, in order to measure the surface or the solid, it will be natural to him to stop in the process of addition when he has counted the tale equal to that of his fingers. Then turning his line in the other direction, and stopping at the same term, he finds the square of his number a hundred: and, applying it again to the solid, he finds its cube a thousand.

But while decimal arithmetic thus, for the purposes of *computation*, shoots spontaneously from the nature of man and of things, it is not equally adapted to the numeration, the multiplication, or the division, of material substances, either in his own person, or in external nature. The proportions of the human body, and of its members, are in other than decimal numbers. The first unit of measures, for the use of the hand, is the *cubit*, or extent from the tip of the elbow to the end of the middle finger; the motives for choosing which, are, that it presents more definite terminations at both ends than any of the other superior limbs, and gives a measure easily handled and carried about the person. By doubling this measure is given the ell, or arm, including the hand, and half the width of the body, to the middle of the breast; and, by doubling that, the fathom, or extent from the extremity of one middle finger to that of the other, with expanded arms, an exact equivalent to the stature of man, or extension from the crown of the head to the sole of the foot. For subdivisions and smaller measures, the span is found equal to half the cubit, the palm to one third of the span, and the finger to one fourth of the palm. The cubit is thus, for the mensuration of matter, naturally divided into 24 equal parts, with subdivisions of which 2, 3, and 4, are the factors; while, for the mensuration of distance, the foot will be found at once equal to one fifth of the pace, and one sixth of the fathom.

Nor are the diversities of nature, in the organization of external matter, better suited to the exclusive use of decimal arithmetic. In the three modes of its extension, to which the same linear measure may be applied, length, breadth, and thickness, the proportions of surface and solidity are not the same with those of length: that which is decimal to the line, is centesimal to the surface, and millesimal to the cube. Geometrical progression forms the rule of numbers for the surface and the solid, and their adaptation to decimal numbers is among the profoundest mysteries of mathematical science, a mystery which had been impenetrable to Pythagoras, Archimedes, and Ptolemy; which remained unrevealed even to Copernicus, Galileo, and Kepler, and the discovery and exposition of which was reserved to immortalize the name of Napier. To the mensuration of the surface and the solid, the number ten is of little more use than any other. The numbers of each of the two or three modes of extension must be

multiplied together to yield the surface or the solid contents: and, unless the object to be measured is a perfect square or cube of equal dimensions at all its sides, decimal arithmetic is utterly incompetent to the purpose of their admeasurement.

Linear measure, to whatever modification of matter applied, extends in a straight line; but the modifications of matter, as produced by nature, are in forms innumerable, of which the defining outward line is almost invariably a curve. If decimal arithmetic is incompetent even to give the dimensions of those artificial forms, the square and the cube, still more incompetent is it to give the circumference, the area, and the contents, of the circle and the sphere.

There are three several modes by which the quantities of material substances may be estimated and compared; by number, by the space which they occupy, and by their apparent specific gravity. We have seen the origin and character of mensuration by space and number, and that, in the order of human existence, one is the result of a necessity incidental to individual man preceding the social union, and the other immediately springing from that union. The union of the sexes constitutes natural society: their permanent cohabitation is the foundation of domestic society, and leads to that of government, arising from the relations between the parents and the offspring which their union produces. The relations between husband and wife import domestic society, consent, and the sacred obligation of promises. Those between parent and child, import subordination and government; on the one side authority, on the other obedience. In the first years of infancy, the authority of the parent is absolute; and has, therefore, in the laws of nature, been tempered by parental affection. As the child advances to mature age, the relations of power and subjection gradually subside, and, finally, are dissolved in that honor and reverence of the child for the parent, which can terminate only with life. When the child goes forth into the world to make a settlement for himself, and found a new family, civil society commences; government is instituted—the tillage of the ground, the discovery and use of metals, exchanges, traffic by barter, a *common* standard of measures, and mensuration by *weight*, or apparent specific gravity, all arise from the multiplying relations between man and man, now superadded to those between man and things.

The difference between the specific gravities of different substances is so great, that it could not, for any length of time, escape observation; but nature has not furnished man, within himself, with any standard for this mode of estimating equivalents. Specific gravity, as an object of mensuration, is in its nature *proportional*. It is not like measures of length and capacity, a comparison between different definite portions of space, but a comparison between different properties of matter. It is not the simple relation between the extension of one substance, and the extension of another; but the complicated relation of extension and gravitation in one substance to the extension and gravitation of another. This distinction is of great and insuperable influence upon the principle of *uniformity*, as applicable to a

system of weights and measures. *Extension* and *gravitation* neither have, nor admit of, one common standard. *Diversity* is the law of their nature, and the only *uniformity* which human ingenuity can establish between them is, an uniformity of proportion, and not an uniformity of identity.

The necessity for the use of *weights* is not in the organization of individual man. It is not essential even to the condition or the comforts of domestic society. It presupposes the discovery of the properties of the balance; and originates in the exchanges of traffic, after the institution of civil society. It results from the experience that the comparison of the articles of exchange, which serve for the subsistence or the enjoyment of life, by their relative extension, is not sufficient as a criterion of their value. The first use of the balance, and of weights, implies two substances, each of which is the test and the standard of the other. It is natural that these substances should be the articles the most essential to subsistence. They will be borrowed from the harvest and the vintage: they will be corn and wine. The discovery of the metals, and their extraction from the bowels of the earth, must, in the annals of human nature, be subsequent, but proximate, to the first use of weights; and, when discovered, the only mode of ascertaining their definite quantities will be soon perceived to be their weight. That they should, themselves, immediately become the common standards of exchanges, or otherwise of value and of weights, is perfectly in the order of nature; but their proportions to one another, or to the other objects by which they are to be estimated, will not be the same as standards of weight, and as standards of value. Gold, silver, copper, and iron, when balanced each by the other in weight, will present masses very different from each other in value. They give rise to another complication, and another diversity, of weights and measures, equally inaccessible to the uniformity of identity, and to the computations of decimal arithmetic.

Of the metals, that which, by the adaptation of its properties to the various uses of society, and to the purposes of traffic, by the quantities in which nature has disclosed it to the possession of man, intermediate between her profuse bounties of the coarser, and her parsimonious dispensation of the finer, metals, holds a middle station between them, wins its way as the common, and at last as the only, standard of value. It becomes the universal medium of exchanges. Its quantities, ascertained by weight, become themselves the standards of weights. Civil government is called in as the guardian and voucher of its purity. The civil authority stamps its image, to authenticate its weight and alloy: and silver becomes at once a weight, money, and coin.

With civil society too originates the necessity for common and uniform standards of measures. Of the different measures of extension necessary for individual man, and for domestic society, although the want will be common to all, and frequently recurring, yet, the standards will not be uniform, either with reference to time or to persons.

The standard of linear measure for each individual being in himself, those of no two individuals will be the same. At different times, the same individual will use different measures, according to the several purposes for which they will be wanted. In domestic society, the measures adaptable to the persons of the husband, of the wife, and of the children, are not the same; nor will the idea of reducing them all to one common standard press itself upon their wants, until the multiplication of families gives rise to the intercourse, exchanges, and government, of civil society. Common standards will then be assumed from the person of some distinguished individual; but accidental circumstances, rather than any law of nature, will determine whether identity or proportion will be the character of their uniformity. If, pursuing the first and original dictate of nature, the cubit should be assumed as the standard of linear measure for the use of the hand, and the pace for the measure of motion, or linear measure upon earth, there will be two units of long measure; one for the measure of matter, and another for the measure of motion. Nor will they be reducible to one; because neither the cubit nor the pace is an aliquot part or a multiple of the other. But, should the discovery have been made, that the *foot* is at once an aliquot part of the pace, for the mensuration of motion, and of the ell and fathom, for the mensuration of matter, the foot will be made the common standard measure for both: and, thenceforth, there will be only one standard unit of long measure, and its uniformity will be that of identity.

Thus, in tracing the theoretic history of weights and measures to their original elements in the nature and the necessities of man, we have found linear measure with individual existence, superficial, capacious, itinerary measure, and decimal arithmetic, with domestic society; weights and common standards, with civil society; money, coins, and all the elements of uniform metrology, with civil government and law; arising in successive and parallel progression together.

When weights and measures present themselves to the contemplation of the legislator, and call for the interposition of law, the first and most prominent idea which occurs to him is that of *uniformity*: his first object is to embody them into a system, and his first wish, to reduce them to one universal common standard. His purposes are *uniformity*, permanency, universality; one standard to be the same for all persons and all purposes, and to continue the same forever. These purposes, however, require powers which no legislator has hitherto been found to possess. The power of the legislator is limited by the extent of his territories, and the numbers of his people. His principle of universality, therefore, cannot be made, by the mere agency of his power, to extend beyond the inhabitants of his own possessions. The power of the legislator is limited over time. He is liable to change his own purposes. He is not infallible: he is liable to mistake the means of effecting his own objects. He is not immortal: his successor accedes to his power, with different views, different opinions, and perhaps different principles. The legislator

has no power over the properties of matter. He cannot give a new constitution to nature. He cannot repeal her law of universal mutability. He cannot square the circle. He cannot reduce extension and gravity to one common measure. He cannot divide or multiply the parts of the surface, the cube, or the sphere, by the uniform and exclusive number ten. The power of the legislator is limited over the will and actions of his subjects. His conflict with them is desperate, when he counteracts their settled habits, their established usages; their domestic and individual economy, their ignorance, their prejudices, and their wants: all which is unavoidable in the attempt radically to change, or to originate, a totally new system of weights and measures.

In the origin of the different measures and weights, at different stages of man's individual and social existence; in the different modes by which nature has bounded the extension of matter; in the incommensurable properties of the straight and the curve line; in the different properties of matter, number, extension, and gravity, of which measures and weights are the tests, nature has planted sources of diversity, which the legislator would in vain overlook, which he would in vain attempt to control. To these sources of diversity in the nature of things, must be added all those arising from the nature and history of man. In the first use of weights and measures, neither universality nor permanency are essential to the uniformity of the standards. Every individual may have standards of his own, and may change them as convenience or humor may dictate. Even in civil society, it is not *necessary*, to the purposes of traffic, that the standards of the buyer and seller should be the same. It suffices, if the proportions between the standards of both parties are mutually understood. In the progress of society, the use of weights and measures having preceded legislation, if the families, descended from one, should, as they naturally may, have the same standards, other families will have others. Until regulated by law, their diversities will be numberless, their changes continual.

These diversities are still further multiplied by the abuses incident to the poverty, imperfections, and deceptions, of human language. So arbitrary and so irrational is the dominion of usage over the speech of man, that, instead of appropriating a specific name to every distinct thing, he is impelled, by an irresistible propensity, sometimes to gives different names to the same thing, but far more frequently to give the same name to different things. Weights and measures are, in their nature, relative. When man first borrows from his own person a standard measure of length, his first error is to give to the measure the name of the limb from which it is assumed. He calls the *measure* a cubit, a span, a hand, a finger, or a foot, improperly applying to it the name of those respective parts of his body. When he has discovered the properties of the balance, he either confounds with it the name of the weight, which he puts in it to balance the article which he would measure, or he gives to the definite mass, which he assumes for his standard, the indefinite and general name

of *the weight.* Such was the original meaning of the weight which we call a *pound.* But, as different families assume different masses of gravity for their unit of weight, the pound of one bears the same name, and is a very different thing from the pound of another. When nations fall into the use of different weights or measures for the estimation of different objects, they commit the still grosser mistake of calling several different weights or measures by the same name. And, when governments degrade themselves by debasing their coins, as unfortunately all governments have done, they add the crime of fraud to that of injustice, by retaining the name of things which they have destroyed or changed. Even things which nature has discriminated so clearly, that they cannot be mistaken, the antipathy of mankind to new words will misrepresent and confound. It suffers not even numbers to retain their essentially definite character. It calls sixteen a dozen. It makes a hundred and twelve a hundred, and twenty-eight, twenty-five. Of all the tangles of confusion to be unravelled by the regulation of weights and measures, these abuses of language in their nomenclature are perhaps the most inextricable. So that when law comes to establish its principles of permanency, uniformity, and universality, it has to contend not only with the diversities arising from the nature of things and of man; but with those infinitely more numerous which proceed from existing usages, and delusive language; with the partial standards, and misapplied names, which have crept in with the lapse of time, beginning with individuals or families, and spreading more or less extensively to villages and communities.

In this conflict between the dominion of usage and of law, the last and greatest dangers to the principle of uniformity proceed from the laws themselves. The legislator having no distinct idea of the uniformity of which the subject is susceptible, not considering how far it should be extended, or where it finds its boundary in the nature of things and of man, enacts laws inadequate to their purpose, inconsistent with one another; sometimes stubbornly resisting, at others weakly yielding to inveterate usages or abuses; and finishes by increasing the diversities which it was his intention to abolish, and by loading his statute book only with the impotence of authority, and the uniformity of confusion.

This inquiry into the theory of weights and measures, as resulting from the natural history of man, was deemed necessary as preliminary to that statement of the proceedings of foreign countries for establishing uniformity in weights and measures, called for by the resolution of the House.

It presents to view certain principles believed to be essential to the subject, upon which the historical statement required will shed continual illustration, and which it will be advisable to bear in mind, when the propositions supposed to be proper for the adoption of the United States are to be considered.

In this review, civil society has been considered as originating in a single family. It can never originate in any other manner. But

government, and national communities, may originate, either by the multiplication of families from one, or in compact, by the voluntary association of many families, or in force, by conquest. In the nations formed by the reunion of many families, each family will have its standard measures and weights already settled, and common standards for the whole can be established only by the means of *law*. It is a consideration from which many important consequences result, that the proper province of law, in relation to weights and measures, is, not to create, but to regulate. It finds them already existing, with diversities innumerable, arising not only from all the causes which have been enumerated, but from all the frauds to which these diversities give continual occasion and temptation.

There are two nations of antiquity from whom almost all the civil, political, and religious institutions of modern Europe, and of her descendants in this hemisphere, are derived—the Hebrews, and the Greeks. They both, at certain periods, not very distant from each other, issued from Egypt; and both nearly at the time of the first invention of alphabetical writing. The earliest existing records of history are of them, and in their respective languages. They exhibit examples of national communities and governments originating in two of the different modes noticed in the preceding remarks. The Hebrews sprung from a single family, of which Abraham and Sarah were the first founders. The Greeks were a confederated nation, formed by the voluntary association of many families. To their historical records, therefore, we must appeal for the actual origin of our own existing weights and measures; and, beginning with the most ancient of them, the Hebrews, it is presumed, that the scriptures may be cited in the character of historical documents. We there find, that all the human inhabitants of this globe sprung from one created pair; that the necessity of raiment adapted to the organization of their bodies, and of the tillage of the ground for their subsistence, arose by their fall from innocence; that their eldest son was a tiller of the ground, and built a city, and their second son a keeper of sheep; that, at no distant period from the creation, instruments of brass and iron were invented. Of the origin of weights and measures, no direct mention is made; but the Hebrew historian, Josephus, asserts, that they were invented by Cain, the tiller of the ground, and the first builder of a city. As the duration of human life was tenfold longer before the flood than in later ages, the multiplication of the species was proportionally rapid; and the inventions and discoveries of many ages were included within the life of every individual. In the early stages of man's existence upon earth, direct revelations from the Creator were also frequent, and imparted knowledge unattainable but in a series of centuries to the merely natural energies of the human mind. The division of numbers by decimal arithmetic, and the use of the *cubit* as a standard measure of length, are distinctly proved to have been established before the general deluge. The division of time into days, months, and years, was settled. The ages of the patriarchs are noted in units, tens, and hundreds of years; and

Noah, we are told, built, by divine instruction, his ark three hundred *cubits* long, fifty cubits broad, and thirty cubits in height.

After the general deluge, the dispersion of the human species, and the confusion of languages which ensued, must have destroyed whatever uniformity of weights and measures might have existed, while the whole earth was of one language and of one speech. After noticing this great and miraculous event, the historical part of the Bible is chiefly confined to the family of Abraham, originally a Chaldean, said to have been very rich in cattle, in silver, and in gold. In his time, we find mention made of *measures* of meal. Abimelech gives him a thousand pieces of silver. He, himself gives to Hagar a *bottle* of water, and buys of Ephron, the Hittite, the field of Machpelah, for which he pays him, by *weight*, four hundred shekels of silver, current money with the merchant. At this period, therefore, we find established measures of length, of land, and of capacity, *liquid* and *dry*; weights, coined money, and decimal arithmetic. The elements for a system of metrology are complete; but the *only* uniformity observable in them is, the identity of weights and coin, and the decimal numbers.

In the *law* given from Sinai—the law, not of a human legislator, but of God—there are two precepts respecting weights and measures. The first, [Leviticus xix. 35, 36] "Ye shall do no unrighte-"ousness in judgment, in mete-yard (measure of length) in weight, "or in measure (of capacity). Just balances, just weights, a just "ephah, and a just hin, shall ye have." The second, [Deuteronomy xxv. 13, 14, 15] "Thou shalt not have in thy bag *divers* weights, "a great and a small. Thou shalt not have in thine house divers "measures, a great and a small. But thou shalt have a perfect and "just weight, a perfect and just measure shalt thou have." The weights and measures are prescribed as already existing and known, and were all probably the same as those of the Egyptians. The first of these injunctions is addressed in the plural to the whole nation, and the second in the singular to every individual. The first has reference to the standards, which were to be kept in the ark of the covenant, or the sanctuary; and the second to the copies of them, kept by every family for their own use. The first, therefore, only commands that the standards should be *just:* and that, in all transactions, for which weights and measures might be used, the principle of righteousness should be observed. The second requires, that the copies of the standards used by individuals, should be uniform, not divers; and not only just, but perfect, with reference to the standards.

The long measures were, the *cubit*, with its subdivisions of two *spans*, six palms or hand-breadths, and twenty-four digits or fingers. It had no division in decimal parts, and was not employed for itinerary measure: that was reckoned by paces, Sabbath day's journeys, and day's journeys. The measures of capacity were, the ephah for the dry, and the *hin* for liquid measure; the primitive standard from nature of which was an egg-shell; six of these, constituted the

log, a measure little less than our *pint*. The largest measure of capacity, the *homer*, was common both to liquid and dry substances; and its contents nearly corresponded with our wine hogshead, and with the Winchester quarter. The intermediate measures were different, and differently subdivided. They combined the decimal and duodecimal divisions: the latter of which may, perhaps, have arisen from the accidental number of the tribes of Israel. Thus, in liquids, the bath was a tenth part of the homer, the hin a sixth part of the bath, and the log a twelfth part of the hin; while, for dry measure, the ephah was a tenth part of the homer, the seah a third, and the omer a tenth part of the ephah, and the cab a sixth part of the seah. The weights and coins were, the shekel, of twenty gerahs; the maneh, which for weight was of sixty and in money of fifty shekels; and the kinchar, or talent, of three thousand shekels in both. The ephah had also been formed by the process of cubing an Egyptian measure of length, called the *ardob*. The original weight of the shekel was the same as one-half of our avoirdupois ounce; the most ancient of weights traceable in human history.

And thus the earliest and most venerable of historical records extant, in perfect coincidence with speculative theory, prove, that the natural standards of weights and measures are not the same; that even the natural standards of cloth and of long measure are two, both derived from the stature and proportions of man, but one from his hand and arm, the other from his leg and foot; that the natural standards of measures of capacity and of weights are different from those of linear measure, and different from each other, the essential character of the weight being compact solidity, and that of the vessel bounded vacuity; that the natural standards of weights are two, one of which is the same with metallic money; and that decimal arithmetic, as founded in nature, is peculiarly applicable to the standard *units* of weights and measures, but not to their subdivisions or fractional parts, nor to the objects of admeasurement and weight.

With all these diversities, the only commands of the law for observing uniformity were, that the weights and the measures should be just, perfect, and not divers, a *great* and a *small*. But this last prohibition was merely an ordinance against fraud. It was a precept to the individual, and not to the nation. It forbade the iniquitous practice of using a large weight or measure for buying, and a small one for selling the same article; and, to remove the opportunity for temptation, it enjoined upon the individual not to have divers weights and measures, great and small, of the same denomination, in his bag when at market, or in his house when at home. But it was never understood to forbid that there should be measures of different dimensions bearing the same name: and it appears, from the sacred history, that there actually were three different measures called a cubit, of about the relative proportion of 17, 21, and 35, of our inches, to each other. They were distinguished by the several denominations of the cubit of a man, the cubit of the king, and the cubit of the sanctuary.

In the vision of the prophet Ezekiel, during the Babylonian captivity—that vision which, under the resurrection of dead bones, shadowed forth the restoration and union of the houses of Ephraim and of Judah, with the reproaches of former violence and spoil, injustice and exactions, are mingled the exhortations of future righteousness, particularly with reference to weights and measures: and there is a special command that the measures of capacity, liquid and dry, should be the same.

"Thus saith the Lord God; let it suffice you, O princes of Israel, "remove violence and spoil, and execute judgment and justice, take "away your exactions from my people, saith the Lord God. Ye "shall have just balances, and a just ephah, and a just bath. The "ephah and the bath shall be one measure, that the bath may con-"tain the tenth part of an homer, and the ephah the tenth part of an "homer; the measure thereof shall be after the homer. And the shekel "shall be twenty gerahs: twenty shekels, five and twenty shekels, "fifteen shekels, shall be your maneh. This is the oblation that ye "shall offer; the sixth part of an ephah of an homer of wheat; and "ye shall give the sixth part of an ephah of an homer of barley. "Concerning the ordinance of oil, ye shall offer the tenth part of a "bath out of the cor, which is an homer of ten baths; for ten baths "are an homer."

Here we see combined the uniformity of identity, and the uniformity of proportion. The homer was a dry, and the cor a liquid, measure of capacity: they were of the same contents: the ephah and the bath were their corresponding tenth parts, also of the same capacity. But the oblation of wheat and barley was to be a *sixth* part of the ephah, and the oblation of oil a tenth part of the bath. The oblations were uniform, but the measures were proportional; and that proportion was compounded of the different weight and value of the respective articles.

In the same vision of Ezekiel, the directions are given for the building of the new temple after the restoration of the captivity; and all the dimensions of the temple are prescribed by a measuring reed of six cubits long by the cubit and an hand-breadth. "And these "(says he) are the measures of the altar after the cubits: *the cubit* "*is a cubit and an hand-breadth.*" [Ch. xliii, 13.]

The book of Job is a story of a man, supposed not to have been descended from Abraham, and certainly not belonging to any of the tribes of Israel. It has reference to other manners, other customs, opinions, and laws, than those of the Hebrews. But it bears evidence of the primitive custom of paying silver by weight, while gold and jewels were valued by tale; and of that system of proportional uniformity, which combines gravity and extension for the mensuration of fluids. Speaking of wisdom, it says, [ch. xxviii, v. 15, 17] "It cannot be gotten for gold, neither *shall silver be weighed* for the "price thereof. The gold and the crystal cannot equal it; and the "exchange of it shall not be for jewels of fine gold." And, after-

wards, in the same chapter, that " God maketh the weight for the " winds, and *and weigheth the waters by measure.*"

The cubit was also a primitive measure of length among the Greeks; but, at the institution of the Olympic games, by Hercules, his foot is said to have been substituted as the unit of measure for the foot-race. Six hundred of these feet constituted the stadium, or length of the course or stand, which thenceforth became the standard itinerary measure of the nation. It was afterwards by the Romans combined with the pace, a thousand of which constituted the mile. The foot and the mile, or thousand paces, are our standard measures of length at this day.

The foot has over the cubit the advantage of being a common aliquot part both of the pace and the fathom. It is also definite at both extremities, and affords the natural means of reducing the two standard measures of length to one. Its adoption was therefore a great and important advance towards uniformity: and this may account for the universal abandonment, by all the modern nations of Europe, of that primitive antediluvian standard measure, the *cubit.*

Of the Greek weights and measures of capacity, the origin is not distinctly known; but that whatever uniformity ever existed in the system was an uniformity of proportion, and not of identity, is certain. They had weights corresponding to our avoirdupois and troy pounds, and measures answering to our wine and ale gallons; not indeed in the same proportions; but in the proportions to each other of the weight of wine and oil.

It has been observed that the process of weighing implies two substances, each of which is the standard and test of the other; that, in the order of human existence, the use of weights precedes the weighing of metals, but that when the metals and their uses to the purposes of life are discovered, their value can at first be estimated only by weight, whereby they soon become standards both of weight and of value for all other things. This theory is confirmed by the history of the Greek, no less than by that of the Hebrew, weights and measures. The term talent, in its primitive meaning in the Greek language, signified a *balance;* and it was at once the largest weight and the highest denomination of money among the Greeks. Its subdivisions, the *mina,* and the *drachma,* were at once weights and money; and the *drachma* was the unit of all the silver coins. But the money which was a weight, though substituted for many purposes, instead of the more ancient weight by which it had itself been tried, never excluded it from use. It had not the fortune of the *foot,* to banish from the use of mankind its predecessor. They had the weight for money, and the weight for measure.

As there are thus in nature two standards of weight, there are also two of measures of capacity. From the names of the Greek measures of capacity, they were originally assumed from cockle and other shells of fish. But as these give no scales of proportion for subdivisions, when reduced to a system, their capacity was determined by the two modifications of matter, extension and weight.

Like the Hebrews, they had measures for liquid and dry substances which were the same; but with different multiples and subdivisions. Their measures of wine and oil were determined by the *weight* of their contents; their measures of water and of grain, by vessels of capacity cubed from measures of length.

The weights and measures of the Romans were all derived from those of the Greeks. The identity of one of their standard units of weight, with money and coin, was the same. *Aes*, brass, was their original money: and as its payment was by weight, the term pound, *libra*, was the balance; and *money* was the weight of brass in the balance. The general term soon came to be applied to a definite weight: and when afterwards silver came to be coined, the *sestertius*, which signified two and a half, and the *denarius*, or piece of *ten*, meant the pieces of silver of value equal respectively to two and a half and to ten of the original brass weights of the balance. The sestertius was the unit of money, and the denarius of silver coins.

The Romans had also two pound weights; which were termed the metrical and the scale pound. "The scale pound," says Galen, "determines the *weight* of bodies; the metrical pound, the contents "or quantity of *space* which they fill."

Their measures of capacity for wet or dry substances were in like manner, in part, the same, but with different multiples and subdivisions. Like them they were formed of the two different processes of cubing the foot, and of testing wine and oil by weight. The *amphora*, or largest measure of liquids, weighed eighty pounds of water, and was formed by cubing, or, as they called it, squaring their foot measure: it was for that reason called a *quadrantal*. But their *congius*, or unit of liquid measure, was any vessel containing ten metrical *pounds weight* of wine. The Silian law, enacted nearly three centuries before the Christian era, expressly declares that the quadrantal contains eighty *pounds* of wine, the *congius* ten pounds; that the *sextarius* contains the sixth *part* of a congius, and is a measure both for liquid and dry substances; that forty-eight sextarii make a quadrantal of wine, and sixteen *libræ* a modius. The money pound, or *pondo*, and the metrical pound, or *libra*, were in the proportion to each other of 84 to 100, nearly the same as that between our troy and avoirdupois weights. [Arbuthnot on Coins, Weights, and Measures, p. 23.] There is a standard congius of the age of Vespasian still extant at Rome; and the inscription upon it marks, that it contains ten pounds of wine.

Among the nations of modern Europe there are two, who, by their genius, their learning, their industry, and their ardent and successful cultivation of the arts and sciences, are scarcely less distinguished than the Hebrews from whom they have received most of their religious, or the Greeks from whom they have derived many of their civil and political institutions. From these two nations the inhabitants of these United States are chiefly descended; and from one of them we have all our existing weights and measures. Both of them, for a series of ages, have been engaged in the pursuit of an uniform

system of weights and measures. To this the wishes of their philanthropists, the hopes of their patriots, the researches of their philosophers, and the energy of their legislators, have been aiming with efforts so stupendous and with perseverance so untiring, that, to any person who shall examine them, it may well be a subject of astonishment to find that they are both yet entangled in the pursuit at this hour, and that it may be doubted whether all their latest and greatest exertions have not hitherto tended to increase diversity instead of producing uniformity.

It was observed, at the introduction of these remarks, that one of the primary elements of uniformity, as applied to a system of weights and measures, has reference to the *persons* by whom they are used; and it has since been noticed, that the power of the legislator is restricted to the inhabitants of his own dominions. Now, the perfection of uniformity with respect to the persons to whose use a system of metrology is adapted, consists in its embracing, at least in its aptitude, the whole human race. In the abstract, that system which would be most useful for one nation, would be the best for all. But this uniformity cannot be obtained by legislation. It must be imposed by conquest, or adopted by consent. When therefore two populous and commercial nations are at the same time forming and maturing a system of weights and measures on the principle of uniformity, unless the system proves to be the same, the result as respects all their relations with each other must be, not uniformity, but new and increased diversity. This consideration is of momentous importance to the people of this Union. Since the establishment of our national independence, we have partaken of that ardent spirit of reform, and that impatient longing for uniformity, which have so signally animated the two nations from whom we descended. The Congress of the United States have been as earnestly employed in the search of an uniform system of weights and measures as the British Parliament. Have either of them considered, how that very principle of uniformity would be affected by any, the slightest change, sanctioned by either, in the existing system, now common to both? If uniformity be their object, is it not necessary to contemplate it in all its aspects? And while squaring the circle to draw a straight line from a curve, and fixing mutability to find a standard pendulum, is it not worth their while to inquire, whether an imperceptible improvement in the uniformity of things would not be dearly purchased by the loss of millions in the uniformity of persons?

It is presumed that the intentions of the House, in requiring a statement of the proceedings in foreign countries for establishing uniformity in weights and measures will be fulfilled by confining this part of the inquiry to the proceedings of the two nations above mentioned. It appears that a reformation of the weights and measures of Spain is among the objects now under the consideration of the Cortes of that kingdom: and, as weights and measures are the necessary and universal instruments of commerce, no change can be effected in the system of any one nation without sensibly affecting, though

in very different degrees, all those with whom they entertain any relations of trade. But the results of this inquiry, newly instituted in Spain, have not yet been made known. France and Great Britain are the only nations of modern Europe who have taken much interest in the organization of a new system, or attempted a reform for the avowed purpose of uniformity. The proceedings in those two countries have been numerous, elaborate, persevering, and, in France especially, comprehensive, profound, and systematic. In both, the phenomenon is still exhibited, that, after many centuries of study, of invention of laws, and of penalties, almost every village in the country is in the habitual use of different weights and measures; which diversity is infinitely multiplied, by the fact, that, in each country, although the quantities of the weights and measures are thus different, their denominations are few in number, and the same names, as foot, pound, ounce, bushel, pint, &c. are applied in different places, and often in the same place, to quantities altogether diverse.

During the conquering period of the French Revolution, the new system of French weights and measures was introduced into those countries which were united to the empire. Since the severance of those countries from France, it has been discarded, excepting in the kingdom of the Netherlands, where, by two ordinances of the king, it has been confirmed with certain exceptions and modifications, particularly with regard to the coins.

In England, from the earliest records of parliamentary history, the statute books are filled with ineffectual attempts of the legislature to establish uniformity. Of the origin of their weights and measures, the historical traces are faint and indistinct: but they have had, from time immemorial, the pound, ounce, foot, inch, and mile, derived from the Romans, and through them from the Greeks, and the *yard*, or *girth*, a measure of Saxon origin, derived, like those of the Hebrews and the Greeks, from the human body, but, as a natural standard, different from theirs, being taken not from the length or members, but from the circumference of the body. The yard of the Saxons evidently belongs to a primitive system of measures different from that of the Greeks, of which the foot, and from that of the Hebrews, Egyptians, and Antediluvians, of which the cubit was the standard. It affords, therefore, another demonstration, how invariably nature *first points* to the human body, and its proportions, for the original standards of linear measure. But the *yard* being for all purposes of use a measure corresponding with the *ulna*, or ell, of the Roman system, became, when superadded to it, a source of diversity, and an obstacle to uniformity in the system. The yard, therefore, very soon after the Roman conquest, is said to have lost its original character of girth; to have been adjusted as a standard by the arm of king Henry the First: and to have been found or made a multiple of the foot, thereby adapting it to the remainder of the system: and this may perhaps be the cause of the difference of the present English foot from that of the Romans, by whom, as a measure, it was introduced. The ell measure has, however, in England, retained its place as a

standard for measuring cloth: but, in the ancient statutes, which for centuries after the conquest were enacted in the degenerate Latin of the age, the term *ulna*, or ell, is always used to designate the yard. Historical traditions allege that, a full century before the Conquest, a law of Edgar prescribed that there should be the same weights, and the same measures, throughout the realm; but that it was never observed. The system which had been introduced by the Romans, however uniform in its origin, must have undergone various changes in the different governments of the Saxton Heptarchy. When those kingdoms were united in one, it was natural that laws of uniformity should be prescribed by the prince; and as natural that usages of diversity should be persisted in by the people. Canute the Dane, William the Conqueror, and Richard the First, princes among those of most extensive and commanding authority, are said to have made laws of the like import, and the same inefficacy. The Norman Conquest made no changes in any of the established weights and measures. The very words of a law of William the Conqueror are cited by modern writers on the English weights and measures; their import is: "We ordain and command that the weights and measures, "throughout the realm, be as our worthy predecessors have established." [Wilkins, Legg, Saxon, Folkes, cited by Clark, p. 150.]

One of the principal objects of the Great Charter was the establishment of uniformity of weights and measures; but it was a uniformity of *existing* weights and measures; and a uniformity not of identity, but of proportion. The words of the 25th chapter of the Great Charter of the year 1225 (9 Henry III.) are, in the English translation of the statutes, "one measure of wine shall be through our realm, "and one measure of ale, and one measure of corn, that is to say, "the *quarter* of London: and one breadth of dyed cloth, that "is to say, two yards [ulne] within the lists: and it shall be of "weights as it is of measures." The London quarter, therefore, and the *yard*, or *ulna*, were existing, known, established measures; and the one measure of corn was the London quarter. The one measure of ale was a gallon, of the same contents for liquid measure as the half peck was for dry. But the one measure of wine was a gallon, not of the same cubical contents as the half-peck and ale gallon, but which, when filled with wine, was of the same weight as the half-peck, or corn gallon, when filled with wheat. And the expressions, "it shall be of weights as it is of measures," mean that there shall be the same proportion between the money weight, and the merchant's weight, as between the wine measure and the corn measure.

The Great Charter, which now appears as the first legislative act in the English statutes at large, is not the Magna Charta extorted by the barons from John, at Runnimead, but a repetition of it by Henry the Third in the year 1225, as confirmed by his son, Edward the First, in the year 1300. It is properly an act of this last date, though inserted in the book as of 9 Henry III., or 1225.

In several of the subsequent confirmations of this charter, which, for successive ages, attest at once how apt it was to be forgotten by power,

in exact proportions, the weight of the farthing loaf, till, when the wheat is at twenty shillings a quarter, it directs the weight of the loaf to be six shillings and three pence. It regulates, in like manner, the price of the gallon of ale, by the price of wheat, barley, and oats; and, finally, declares, that, "by the consent of *the whole realm* of Eng-"land, the *measure* of the king was made; that is to say: that an "English *penny*, called a sterling round, and without any clipping, "shall weigh thirty-two wheat corns in the midst of the ear, and "twenty-pence do make an ounce, and twelve ounces one pound, and "eight pound do make a gallon of *wine*, and eight gallons of *wine* "do make a London bushel, which is the eighth part of a quarter."

Henry the Third was the eighth king of the Norman race: and this statute was passed exactly two hundred years after the Conquest. It is merely an exemplification, word for word, embracing several ordinances of his progenitors, kings of England; and it unfolds a system of uniformity for weights, coins, and measures of capacity, very ingeniously imagined, and skilfully combined.

It shows, first, that the money weight was identical with the silver coins: and it establishes an uniformity of proportion between the money weight and the merchant's weight, exactly corresponding to that between the measure of wine and the measure of grain.

It makes wheat and silver money, the two weights of the balance, the natural tests and standards of each other; that is, it makes wheat the standard for the weight of silver money, and silver money the standard for the weight of wheat.

It combines an uniformity of proportion between the weight and the measure of wheat and of wine; so that the measure of wheat should at the same time be a certain weight of wheat and the measure of wine at the same time a certain weight of wine, so that the article whether bought and sold by weight or by measure, the result was the same. To this, with regard to wheat, it gave the further advantage of an abridged process for buying or selling it by the number of its kernels. Under this system, wheat was bought and sold by a combination of every property of its nature, with reference to quantity; that is, by number, weight, and measure. The statute also fixed its proportional weight and value with reference to the weight and value of the silver coin for which it was to be exchanged in trade. If, as the most eminent of the modern economists maintain, the value of every thing in trade is regulated by the proportional value of money and of wheat, then the system of weights and measures, contained in this statute, is not only accounted for as originating in the nature of things, but it may be doubted whether any other system be reconcileable to nature. It was with reference to this system, that, in the introduction to this report, it was observed, that our own weights and measures were originally founded upon an uniformity of proportion, and not upon an uniformity of identity. In the system which allows only one unit of weights and one unit of measures of capacity, all the advantages of the uniformity of pro-

portion are lost. The litre of the French system is a weight for nothing but distilled water, at a given temperature.

But with this statute of 1266, and with the admirable system of proportional uniformity in weights and measures, of which it gives the elements, it has fared still worse than with the twenty-fifth chapter of Magna Charta. The most valuable and important feature of uniformity in the system, the identity of the nummulary weight and of the standard silver coin, that feature which is believed to be of more influence upon the happiness and upon the morals of nations, than any other principle of uniformity of which weights and measures are susceptible, was first defaced by Edward the First himself. It was utterly annihilated by his successors. The consequence of which has been, that the object and scope of the statute of 1266 have been misunderstood by subsequent parliaments; that laws have been enacted professedly in conformity to this statute, but entirely subversive of it; and that anomalies have crept into the weights and measures of England, and of this Union, which it appears to be impossible to trace to any other source.

The only notice which most of the modern writers upon English weights and measures have taken of this statute has been, to censure it for taking kernels of wheat as the natural standard of weights; with the very obvious remark that the wheat of different seasons and of different fields, and often even of the same field and the same season, is different. But the statute is chargeable with no such uncertainty. The statute merely describes how the standard measure of the exchequer, by the consent of the whole realm of England, was made. The article, for which of all others the measure was most wanted, was wheat; and a measure was wanted which should give it, as far as was practicable, in number, weight, and measure. It took, therefore, thirty-two kernels of *average* wheat from the middle of the ear, and found them equal in weight to the silver penny sterling, new from the mint, round and without clipping. It then drops the numeration of wheat; but proceeds to declare that twenty such pence make an ounce, twelve ounces one pound, and eight pounds a gallon of *wine*, and eight *gallons of wine* a London bushel, which is the eighth part of a quarter. It must be observed here, that it was not the *measure* but the *weight* of wine, which was used to form the standard bushel. It was not eight wine gallons, but eight gallons of wine. The bushel, therefore, filled with wheat, was a measure which, in the scales, would exactly balance a keg containing eight gallons of wine, deducting the tare of both the vessels. Now, the eighth part of this bushel, or the ale gallon, would be a vessel, not of the same cubic contents as the wine gallon, but of the same proportion to it as the weight of wheat bears to the weight of wine; the proportion between the commercial and nummulary weights of the Greeks; the proportion between our avoirdupois and troy pounds.

But neither the present avoirdupois, nor troy weights, were then the standard weights of England. The key-stone to the whole fabric of the system of 1266 was the *weight* of the silver penny *sterling*.

This penny was the two hundred and fortieth part of the tower pound; the sterling or easterling pound which had been used at the mint for centuries before the conquest, and which continued to be used for the coinage of money till the eighteenth year of Henry the Eighth, 1527, when the troy pound was substituted in its stead. The tower or easterling pound weighed three quarters of an ounce troy less than the troy pound, and was consequently in the proportion to it of 15 to 16. Its penny, or two hundred and fortieth part, weighed, therefore, 22½ grains troy; and that was the weight of the thirty-two kernels of wheat from the middle of the ear, which, according to the statute of 1266, had been taken to form the standard measure of wheat for the whole realm of England. It is also to be remembered, that the eight twelve ounce pounds of wheat, which made the gallon of wine, produced a measure which contained nearly ten of the same pounds of wine. The commercial pound, by which wine and most other articles were weighed, was then of fifteen ounces. This is apparent from the treatise of weights and measures of 1304, which repeats the composition of measures declared in the statute of 1266, with a variation of expressions, entirely decisive of its meaning. It says that, "by the "ordnance of the whole realm of England, the measure of the king "was made, that is to say: that the penny called sterling, round, and "without clipping, shall weigh thirty-two grains of wheat in the "middle of the ear. And the ounce shall weigh twenty pence; and "twelve ounces make the *London* pound; and eight pounds of *wheat* "make a gallon; and eight gallons make the London bushel." It then proceeds to enumerate a multitude of other articles, sold by weight or by numbers, such as lead, wool, cheese, spices, hides, and various kinds of fish; and, after mentioning nominal hundreds, consisting of 108 and 120, finally adds, "it is to be known that every "pound of money and of medicines consists only of twenty shillings "weight; but the pound of *all* other things consists of twenty-five "shillings. The ounce of medicines consists of twenty pence, and "the pound contains twelve ounces; but, in other things, the pound "contains fifteen ounces, and, in both cases, the ounce is of the weight "of twenty pence."

Wine and wheat therefore were both among the articles of which the pound consisted of fifteen ounces. By the statute of 1266, the gallon of wine contained eight such pounds of wine. By the statute of 1304, the gallon [for ale] contained eight such pounds of wheat; and the weight of wine contained in eight such wine gallons, and the weight of wheat contained in eight such corn or ale gallons, was equally the measure of the bushel.

The wine, to which the statute of 1266, and many subsequent English statutes exclusively refer, was the wine of Gascoign, a province at that, and for a long period, under the dominion of the English kings, the same sort of wine which now goes under the denomination of Claret, or Bordeaux. Its specific gravity is to that of distilled water as 9,935 to 10,000, and its weight is of 250 grains troy weight to the cubic inch.

racter of the substance which it is to contain, and to the convenience and safety of its conveyance by sea. It must be adapted for stowage to the necessary form of the ship; to the volatile property of fluids; to the concussions of tempestuous elements. It is in the composition of the ton that the natural connection between the weight of water, and cubic linear measure, first presents itself. The burden of the ship is the weight of tonnage which it can bear afloat upon the waves; that weight is equal to the weight of water which it displaces; the measure of the ship must be taken by the builder in linear measure. Now eighty of the old easterling tower pounds make 432,000 grains troy weight, which, divided again by 250, the number of troy grains to a cubic inch of Bordeaux wine, give 1728 cubic inches, precisely the dimensions of an English cubic foot, one eighth part of which makes again the gallon of 216 cubic inches. And here we discover, again, the quadrantal or amphora of the Romans, the cubic foot containing 80 pounds of wine.

That the assize of the ton, which in 1423 was *of old time*, was equally well known and established in 1353, appears from a statute of that date, 27 Edward III., ch. 8, directing that all wines, red and white, should be gauged by the king's gaugers, and that in case less should be found in the tun or pipe than ought to be of right, *after the assize of the tun*, the value of as much as lacked should be allowed and deducted in payment.

The casks of Bordeaux wine were then and still are made for stowage in such manner that four hogsheads occupy one ton of shipping. The ton was of thirty-two cubic feet by measure, and of 2016 English pounds, of fifteen ounces to the pound, in weight; equal to 2560 of the easterling tower pound.

In comparing together the wine gallon as prescribed by the statute of 1266 and that derived from the assize of the tun, we find the former in the ascending ratio, beginning with the kernel of wheat and multiplying: the latter is formed in the descending ratio, beginning at the tun and dividing. In one process, the gallon is formed by weight; in the other, by measure. The hogshead of wine was the measure corresponding to the quarter of wheat: but there was a difference of eight pounds in their weight. The hogshead of wine weighed 504 and the quarter of wheat 512 pounds, of 15 ounces. The wine gallon of 216 cubic inches, prescribed by the statute of 1266, was thus an exact eighth part of the English cubic foot of 1728 inches.

The wine gallon therefore is the *congius* of the Romans, weighing ten nummulary and eight commercial pounds, and measuring exactly the eighth part of a cubic foot.

But the gallon of 216 cubic inches, the eighth part of the cubic foot, was derived originally from a measure of *water*, and was an eighth part of the ton of shipping. The wine gallon of 1266 was water of eight easterling pounds of wheat; and, therefore, contained the eight corresponding commercial pounds. But if the gallon weighing eight pounds, was of 216 solid inches, the gallon

coined into twenty-five shillings, or 300 pennies. The silver penny then weighed only $25\frac{3}{5}$ kernels of that wheat of which the penny of 1266 weighed 32. It is probable that, in reducing the weight of their coins, none of those sovereigns were aware that they were taking away the standard of all the weights and of all the vessels of measure, liquid and dry, throughout the kingdom: but so it was. It destroyed all the symmetry of the system. It has been further affected by the introduction of the troy and avoirdupois weights.

The standard measures of the exchequer had been made by the rules set forth in the statutes of 1266 and 1304. These standards were kept in the royal exchequer. In process of time, the standards themselves fell into decay, and called for renovation. In the year 1494, shortly after the termination of the long and sanguinary wars between the houses of York and Lancaster, Henry the Seventh, in the tenth year of his reign, undertook to furnish forty-three of the principal cities of the kingdom with new copies of all the standard weights and measures then in the exchequer. They were accordingly made and delivered to the representatives in parliament of the respective counties: but it was soon discovered that they were all defective, and not made according to the laws of the land. From what cause this had arisen, does not appear; but that the laws of the land to which they referred, namely, the statutes of 1266 and 1304, were and continued to be entirely misunderstood, is abundantly apparent from the statute which was made the very next session of parliament, 1496, to remedy the evil.

This act, after reciting the extraordinary attention of the king in having made at his great charge and cost, and having distributed, all those county standards of weights and measures, according to the old standards in the treasury; and after stating the disappointment which had ensued, upon the discovery of more diligent examination that they were all defective and not made according to the old laws and statutes, proceeds to ordain, that the measure of a bushel contain eight gallons of wheat, that every gallon contain eight pounds of wheat, *troy* weight, and every pound contain twelve ounces of troy weight, and every ounce contain twenty *sterlings*, and every sterling be of the weight of thirty-two corns of wheat that grew in the midst of the ear of wheat, *according to the old laws of the land:* and the new standard gallon, after the said assize, was to be made to remain in the king's treasury forever. All the weights and measures, which had been sent by the act of the former year throughout England, were directed to be returned: others, conformable to the new standard, were to be made from them and sent back, after which, all weights and measures were to be made conformably to them.

It is from the terms of this statute, that many of the English writers have concluded that the kernel of wheat was the original standard of English weights. It is by this statute made the standard of troy weight; but it was not so according to the *old laws of the land.* It was not so in the measure declared in 1266, and 1304, to have been

made by the consent of the whole realm of England. To prove this, it is only necessary to compare the statutes together.

The two first declare, that an English *penny, called a sterling*, round and without any clipping, will weigh thirty-two corns of wheat from the midst of the ear. That penny was the two hundred and fortieth part of the old tower pound, and was one-sixteenth lighter than troy weight. The weight of that penny in 1266 is therefore now known, but appears not to have been known to the parliament of 1496. For the tower pound was then coined into thirty-seven shillings and six pence sterling, and, consequently, the penny called a sterling, instead of *then* weighing thirty-two grains of the wheat, which it weighed in 1304, would have weighed only seventeen of the same grains.

The term *penny*, therefore, is dropped in the act of 1496, but the term sterling is retained, and improperly applied to the penny *weight* troy. The penny of 1266 was both weight and coin. In 1496, the penny had ceased to be a coin, and the penny sterling, which was yet money, weighed little more than half what it had weighed till after 1304. The penny weight troy was never called *a sterling*, any where, or at any time, but in this act of 1496. It was neither the weight of the old tower standard, nor was it the penny sterling of Henry the Seventh's own coinage.

The statute of 1496 inverts the order of the old statutes; it is not a *composition*, but an *analysis*, of measures. It begins with the bushel, and descends to the kernel. The act of 1266, to make the weight, number, and measure, of corn, money, and wine, begins with the kernel, and ascends by steps to the weight of coin; thence, to the measure of wine, by the weight of corn; thence, to the measure of corn, by the weight of wine. The mere process of the composition establishes the proportional measures. The statute of 1496 destroys the proportion altogether. It says that every gallon shall contain eight pounds of wheat *troy weight*, and every pound twelve ounces of troy weight. It substitutes, therefore, instead of the *weight* of the gallon of wine, prescribed by the statute of 1266, the *measure* of the wine gallon, for the eighth part of the bushel. The gallon, established by this act of 1496, is the gallon of two hundred and twenty-four cubic inches; the Guildhall gallon, which in 1688 was found by the commissioners of the excise to be of that capacity. It contains eight pounds troy weight of wheat, and, consequently, eight pounds avoirdupois of Bordeaux wine, of 250 grains troy to the cubic inch. Its bushel would contain seventeen hundred and ninety-two cubic inches; but if such a bushel ever was made, as the act required, it never was used as a standard. It must have been found to fall too far short of the old standards still existing; and the real standard bushels of Henry the Seventh, in the exchequer, instead of being made according to the process prescribed in his law of 1496, must have been copied from the older standard bushels then existing.

The gallon of two hundred and thirty-one inches was also a gallon made under the statute of 1496. But the wheat is of that kind thirty-

two grains of which equipoise the penny of the old tower pound; while the wheat that forms the gallon of two hundred and twenty-four inches, is that of which thirty-two kernels weigh a penny weight troy. The weight of the corn in both gallons would be the same; but that, of which each kernel upon the average would be one sixteenth heavier than those of the other, would, by the combined proportion of gravity and numbers, occupy one thirty-second less of space. This is precisely the difference between the gallons of two hundred and twenty-four and two hundred and thirty-one solid inches.

The debasement of the coin had destroyed its original identity with the money weight. The substitution of *troy* weight, instead of the old easterling pound, for the composition of the gallon, destroyed the coincidence between the water gallon, derived from the ton, the eighth part of the cubic foot, and the wine gallon, containing eight money pounds of wheat. The wine gallon of two hundred and twenty-four, or two hundred and thirty-one cubic inches, no longer bore the same proportion to the cubic foot of water; one consequence of which was, that the hogshead of Bordeaux wine, which the law required to contain sixty-three gallons, no longer contained that number of English gallons; but, from that day to this, has contained from fifty-nine to sixty-one. It still contains at least sixty-three Irish gallons.

The act of 12 Henry VII, (1496,) intended, upon the face of it, to be a mere repetition of the statutes of 1266, and 1304, was thus a total subversion of them. It was founded upon two mistakes; the first, a supposition that the penny sterling, described in those statutes, was the penny weight troy; and the second, a belief that it was the *measure*, and not the *weight*, of eight gallons of wine, which constituted the bushel. The causes of these mistakes were, first, that, in the lapse of two centuries, a great portion of which had been a period of calamity and civil war, the successive debasements of the coin had reduced the penny sterling to about half its weight as it was when made the standard of comparison with thirty-two kernels of wheat; and finding that the penny sterling of their own time, if used to make the new standard bushel, would reduce its size by nearly one half, which had perhaps been the mistake upon which the act of 1494 had been made, they must hastily have concluded that it was the penny weight troy, which was intended by the old statutes. The second was a misapplication of the term *gallon*, which, in its original meaning, and in its popular signification to this day, is exclusively a measure of liquids, and not of dry substances. In the statute of 1266, it is expressly called the gallon of *wine*. In the act of 1304, it was called the gallon, without addition, but meaning the same wine gallon. The measure for corn was the bushel; and its subdivisions were the peck, pottle, and pint. The eighth part of the *measure* of a bushel was first called a *gallon*, because it was used as the measure of the ordinary liquids brewed from grain, beer and ale. There never was properly any corn gallon; and the term was misapplied even to denote the measure of beer. Being a vessel of different dimensions, it ought

would not be of fifteen to twelve, nor of seventeen to fourteen, but of one hundred and seventy-five to one hundred and forty-three.

When the avoirdupois or the troy weights were first introduced into England, has been a subject of controversy among the English writers, and is not ascertained. The names of both indicate a French origin: but that no new weight or measure was brought in by the Norman Conqueror is certain, and the statute of weights and measures of 1304 proves that neither of them were *then* recognized by law. One of the most learned writers upon the coins,* says that troy weights were first established by this statute of Henry VII. of 1496; that it was owing to the *intercursus magnus*, or great treaty of commerce concluded between England and Flanders the year before; that the Flemish pound was adopted as a compliment to the Duchess of Burgundy, and for the mutual convenience of all their payments, which would then be adjusted by the same pound.

This conjecture is ingenious, but not well founded. The statute of 1496 did, in fact, legitimate troy weight for the composition of the gallon and the bushel, but it professed, and intended to introduce, no new weight or measure. Its purpose was to re-enact the composition of weights and measures of 1266. It was a legislative error, intended to correct another error committed at the last preceding session of parliament in 1494, before the intercursus magnus was concluded. Instead of correcting the error, it rendered it irreparable. It was so far from correcting the error, that, although a standard wine gallon was made under this statute, which was the Guildhall wine gallon of two hundred and twenty-four inches, there never was a standard bushel made by the rule prescribed in this statute: and if there had been, its cubic contents would have been not one inch more or less than seventeen hundred and ninety-two.

The troy weight was never used by Henry VII. at the mint at all. He made a wine gallon by it, because the difference between a gallon of 217.6 inches, which was the old standard, and one of 224, which was made by his troy weights, was not large enough to make its incorrectness apparent. It was scarcely the difference of a small wine glass upon a gallon: and, as it was a difference of excess over the contents of the old standard, it might naturally be attributed to the decays or inaccuracy of that. He ordained that a bushel should be made by it; but a bushel made from the *measure* of his wine gallon, a bushel of seventeen hundred and ninety-two inches, would have contained at least three hundred and thirty inches, nearly twelve pounds in weight less than any of the old standards. This would have been found a difference utterly intolerable. It would have been necessary to recal and break up the new standards a second time, and to acknowledge a second error greater than the first. So the statute, so far as related to the composition of the bushel, was suffered to slumber upon the rolls; the old standard bushels were still retained; and new ones were also made, not by the troy, but by

* Clarke.

the avoirdupois pound of wheat: and hence it is that standard bushels of Henry the Seventh exist at the exchequer, one of 2124 inches, which is the old standard, and one of 2146 inches, which is the Winchester bushel, and, at the same time, corn gallons of 272 inches.

That the troy weight was not introduced into England by Henry the Seventh is further proved by two statutes; one of 1414, 2 Henry V. ch. 4, and one of 1423, 2 Henry VI. st. 2, ch. 4: in the first of which it is ordained, that the goldsmiths should give no silver worse than of the allay of the English sterling, and that they take for a pound of *troy* gilt but forty-six shillings and eight pence at the most; and, in the second, that silver, not coined, in plate, piece, or in mass, being of as good allay as the sterling, should not be sold for more than thirty *shillings* the pound troy, besides the fashion, because the same was of no more value at the coin than thirty-two shillings. The tower easterling pound was at that time coined into thirty *shillings*, and the value of the troy pound of the same alloy was, of course, thirty-two.

From these two statutes it is apparent that, nearly a century before Henry the Seventh, the troy pound was used by the goldsmiths, who were the bankers of that age, and were foreigners, for weighing bullion and plate; and that the proportion of the troy pound to the tower money pound was as sixteen to fifteen.

That the troy pound, though adopted by Henry the Seventh for the composition of the bushel and gallon, was not introduced by him at the mint, appears equally clear. About the middle of the last century, Martin Folkes published his tables of English coins, in which he cited a verdict remaining in the exchequer, dated 30th October, 1527, 18 Henry VIII. in which are the following words: "And "whereas, heretofore, the merchant paid for coynage of every *pound* "*towre* of fyne gold, weighing xi. oz. quarter troye, 2*s*. 6*d*. "Nowe it is determined by the King's highness, and his said coun- "celle, that the aforesaid pounde towre shall be no more used and "occupied; but all manner of golde and sylver shall be wayed by the "pounde troye, which maketh xii. oz. troye, which excedith the "pounde towre in weight three quarters of the ounce." [*Clarke*, p. 15.]

A French record of much earlier date, from the register of the Chamber of Accounts at Paris, cited also by Folkes, shows that, early in the fourteenth century, there were among the weights in common use in France two marks, of different gravity, one of troy, and the other of *Rochelle*, in the same proportion to each other, and that the last was called the mark *of England*.

The Rochelle and easterling pound was therefore the same; and that was the pound, eight of which in spring water were contained in the eighth part of the cubic foot, and formed the gallon of 216 cubic inches.

This proportion, as has been observed, was totally destroyed by the substitution of the troy pound by Henry the Seventh, in 1496,

instead of the Rochelle pound, for the composition of the bushel and gallon.

As, by the treatise of weights and measures of 1304, only two weights are mentioned, by which it asserts that all things were weighed, this towre pound of twelve ounces, and the corresponding commercial pound of fifteen of the same ounces, it is clear that the troy weight was then unknown, or at least not used in England. But this reign of Edward the First was also the period when the foreign commerce of England began to flourish. In 1296, the famous mercantile society, called the Merchant Adventurers, had its first origin; and another society of natives of Lombardy, the great merchants of that age, about the same time established themselves in England, under the protection of a special charter of privileges from Edward. These Lombards soon became the goldsmiths and bankers in England. [*Hume*, vol. ii. p. 330, ch. 13.] In the year 1354, the balance of exports above the imports was of more than 250,000 pounds; and as the balances of that age could be paid for only in specie, whenever the balance was in favor of England it must have brought much foreign money into the kingdom. The pound of the goldsmiths and bankers was the troy weight, and by them, there can be little doubt, it was first introduced. The pound of fifteen ounces troy must have been introduced at the same time, by an accommodation of that weight to the old English rule—that when bullion and drugs were weighed by a pound of twelve ounces, all other things were weighed by a pound of fifteen of the same ounces. This pound of fifteen ounces, or 7200 grains troy, has never been recognized in England by law; but, in many parts of England, it has been used under the name of the merchant's weight: and eight such pounds of wheat form precisely the gallon of 280 cubic inches, of which the standard quart in the exchequer is the fourth part.

The time and occasion of the introduction of the avoirdupois pound into England is no better known than that of the troy weight. But it may be inferred, from the ancient statutes, that it was brought in by the same foreign merchants, with the troy, and as the corresponding weight to that as the weight for bullion and pharmacy. The first time that the term avoirdupois is used in the English statute book, is in the 9th of Edward III. stat. 1, ch. i. (1335,) the very statute which authorizes merchant *strangers* to buy or sell corn, wine, *avoirdupois*, flesh, fish, and all other provisions, and victuals, wool, cloths, wares, merchandises, and all other vendible articles in any part of England.

Eighteen years afterwards, in the celebrated statute staple of 1353, [27 Edward III. ch. 10.] is the following provision: "Forasmuch as we have heard that some merchants purchase *avoirdupois*, "woollens, and other merchandises, by one weight and sell by another, and also make deceivable diminutions upon the weight, and "also use false measures and yards, to the great deceit of us and of "all the commonalty and of honest merchants: We therefore will "and establish, that one weight, one measure, and one yard, be

"throughout the land, as well without the staple as within, and that "woollens, and all manner of *avoirdupois*, shall be weighed by ba-"lances," &c.

In these two statutes, the term avoirdupois manifestly refers, not to the weight, but to the article weighed. It means all *weighable* articles, in contradistinction to articles sold by measure or by tale; and the *one weight*, meant by the statute staple, is the easterling pound of fifteen ounces, mentioned in the statute of weights and measures of 1304. Money and bullion were not included among these *weighable* articles, because they had a special weight of their own, and because money was current by *tale*. Grain and liquids were not weighable articles, because they were bought and sold by *measure*. Hence arose naturally the practice of calling all articles bought and sold by weight in the traffic of these merchant strangers, articles *having weight*, or weighable.

That this is the meaning of the term avoirdupois is also demonstrated by an act of 1429, (8 Henry VI. ch. 5.) which reciting these regulations of Edward the Third, expressly says, that they require woollens, and all manner of *weighable* things, [toutz manerz des choses poisablez] bought or sold, to be weighed by even balance, with weights sealed according to the standard of the exchequer.

The terms *avoirdupois*, and *choses poisablez*, were therefore synonymous. But the merchant strangers had a weight of their own; the corresponding commercial weight proportional to their pound troy. This was the weight now called the avoirdupois pound, of sixteen ounces, but the ounce of which was not the same as that of the troy weight. The standard easterling pound of fifteen ounces at the exchequer weighed 6750 grains troy. The avoirdupois pound of the merchant strangers weighed 7000. The difference between them was but of about half an ounce, and one sees instantly what temptations and opportunities this slight difference furnished to those unprincipled merchants of whom the statute staple complains, of buying by their own foreign larger weight, and selling by the weight of the exchequer.

The statute staple of 1353, and the act of 2 Henry VI., 1423, are both evidences of the conflict between the mint and exchequer easterling pounds on one side, and the troy and avoirdupois weights of the merchant strangers on the other. In this struggle, the latter ultimately prevailed, and completely rooted out the old English weights. The troy weight, being adopted by Henry the Seventh, in 1496, for the composition of the bushel and gallon, and by Henry the Eighth in 1527 for making money at the mint, the avoirdupois pound came in as the corresponding commercial pound; and a statute of 24 Henry VIII., ch. 3, 1532, directs, that beef, pork, mutton, and veal, shall be sold by weight, *called* haverdupois; the very use of which expression, *called* haverdupois, indicates that it was a denomination, as applied to the weight, of recent origin, and that the weight itself had not been long in general use for any purpose.

A statute of the preceding year, 23 Henry VIII., ch. 4, 1531, s. 13, had directed, that every cooper should make every barrel for ale "*according to the assize specified in the treatise called Compositio Men-*"*surarum;* [the statute of 1304] that is to say, every barrel for ale, "shall contain thirty-two gallons of the said assize, or above, of the "which eight gallons make the common bushel to be used in this "realm of England," &c.

By this statute, the ale gallon was expressly declared to be the eighth part of the *measure* of the bushel. Now, it has been proved, that, by the *Compositio Mensurarum,* the bushel was a measure containing of wheat the *weight* of eight gallons of wine. The eighth part of this *measure,* therefore, being the ale gallon, *must* bear the same proportion to the wine gallon, as the specific gravity of wheat bears to that of wine: and the wine gallon of 231 inches having been made by the rule of the *Compositio Mensurarum,* but by the troy weight of the statute of 1496, that is to say, weighing eight troy pounds of the wheat thirty-two kernels of which were equiponderant to the penny sterling of 1266, the bushel, to balance eight such gallons of wine, must of necessity contain sixty-four avoirdupois pounds of wheat, and measure 2256 cubic inches. The eighth part of this measure is the gallon of 282 inches, which is to this day the standard ale and beer gallon of the British exchequer, and of these United States.

And thus we have seen that all the varieties of standard gallons and bushels, which have been found, from the Irish gallon of 217.6 cubic inches, to the ale gallon of 282, and from the ordained, but never made, bushel of 1792 inches, prescribed by Henry the Seventh's act of 1496, to the bushel of 2256 inches, of which the ale gallon is the eighth part, are distinctly traceable to the inconsistency of human laws, and the consistency of the laws of nature.

The statute of 1496 changed the contents of both the gallons, and of the bushel, without intending it. For, although the bushel of 1792 inches was never made, or at least never deposited as a standard at the exchequer, yet new standard bushels were made from the new wine gallon, by the rule of the Compositio Mensurarum, and they produced the bushel of 2224 of Henry the Seventh, still extant at the exchequer.

The *Winchester* bushel of the exchequer, however, was not thus made. It was found in the year 1696 to contain 2145.6 cubic inches of spring water. Its ale gallon, therefore, by the statute of 1531, and the Compositio Mensurarum, would have been of 268.2, and its wine gallon of 219.2 cubic inches. Its difference from the proportions of the Irish wine gallon, and the Rumford corn gallon, is so slight, that there can be no doubt it was copied from a model made by the statute of 1266.

That the capacity of the wine gallon, although it was very essentially changed, was not intended or understood to be changed by the statute of 1496, is proved by the statute of 28 Henry VIII. ch. 14, 1536; which re-enacts the old statutes requiring that the tun of wine

should contain 252 gallons, and all other casks of the same proportion, including the hogshead of sixty-three gallons. Now, the hogshead which contained sixty-three gallons of 217.6 cubic inches, could contain no more than sixty-one and a quarter gallons of 224 inches, nor more than fifty-nine and one third gallons of 231 inches. The ordinary Bordeaux hogshead contains from fifty-nine to sixty gallons: and the size of this cask, being formed of a certain number of staves of settled dimensions, and made by the coopers in particular forms, has passed down, from age to age, without alteration; while the laws of England, and those of several of the United States, have required that it should contain sixty-three gallons of 231 cubic inches, because, five hundred years ago, the laws required it to contain sixty-three gallons of 219.5 inches.

In the reign of Elizabeth, the change, which had been effected in the wine gallon by the act of 1496, was discovered in its effects upon another branch of trade; but the cause of the change appears not to have been perceived. The statute of 13 Elizabeth, ch. 11, (1570,) recites, that the people employed in the herring fishery "had, time "out of mind, used to pack their herring in barrels containing *about* "thirty-two gallons of usual *wine* measure, which assize had always "been gauged and allowed in the city of London, yet the measure "had lately been quarrelled at by certain informers, for not contain-"ing thirty-two gallons by the old measure of standard, *which they* "*never did*, though peradventure *the extremity of old statutes in words*, "*by some men's construction*, might be stretched to require so much." It then enacts, "that thirty-two gallons wine measure, which is *about* "twenty eight gallons by old standard, shall be the lawful assize of "herring barrels, any old statute to the contrary notwithstanding." This was cutting the Gordian knot. The wine gallon here referred to was the gallon of 231 inches, made by the troy weight wheat of Henry the Seventh. The *old standard* is the corn gallon of 1266, which, according to the Rumford quart examined by the committee of the House of Commons in 1758, was of 264.8, or, according to the Rumford gallon, was of 266.25 cubic inches. Now twenty-eight gallons of 264 inches are of precisely the same capacity as thirty-two gallons of 231. But, as the wine gallon at Guildhall, though it showed 231 inches by the gauge, did, in fact, contain seven inches less, and as the herring barrels were gauged according to the Guildhall gallon, they would have fallen short nearly one gallon in the barrel of twenty-eight gallons by the *old standard:* and the act, the object of which was to rescue the herring fishers from the fangs of informers, is cautious not to tie them down to too close a measure. The old statutes, the construction of which the act professes to consider as doubtful, are not named; but the act of 23 Henry VIII., 1531, *must* have been that upon which the informers had quarrelled at the assize of the barrels used by the herring fishers.

That act requires that the coopers should make barrels of thirty-two gallons for ale, according to the assize of the Compositio Mensurarum—gallons, eight of which make the common bushel. Now, the

act of 1496 had expressly directed that *every* gallon should contain eight pounds of wheat *troy* weight, and that the bushel should contain eight such gallons of wheat. But this law, so far as it prescribed a new bushel, had never been executed: the old standard bushels remained. So that the statute for the coopers of 1531 was on the side of the informers, and the statute of weights and measures of 1496 was on the side of the herring fishers. Parliament found no expedient for the difficulty but to declare the usual existing size of the herring barrels lawful, and to set all the old statutes aside, with a non obstante.

If the parliament of 1496, contrary to their avowed intention, did actually change the capacity of the wine and corn gallons, and did ordain a much greater change of the capacity of the bushel, these varieties, effected by the law, while they were unknown to the legislators, were still less likely to come to the general knowledge of the people. The eagle eyes of informers would occasionally discover that the measures of the people fell short of the standards of the law: but the people took the standards as they came, and used the measures which they and their fore-fathers, time out of mind, had employed.

The Restoration of 1660, after the convulsions of a civil war, formed a new æra, not only in the political history of England, but in that of their vessels of capacity. It was then that a new system of taxation commenced by the excise upon liquors. About the same time, also, commenced a new æra in the philosophical and scientific pursuits of the English nation, by the establishment of the Royal Society. Both these events were destined to have an important influence upon the history of English weights and measures.

The excise was a duty levied, by the gallon, upon malt liquors, and upon wines. The malt liquors were measured by the standard gallon at the treasury, made according to the cooperage act of 1531, by the rule of the *Compositio Mensurarum*, applied to the troy weight wine gallon of the statute of 1496. This gallon, therefore, was neither the wine gallon of 1496, nor the eighth part of the old standard bushel, nor of the Winchester bushel, but the gallon which, if filled with wheat of the troy weight specified in the statute of 1496, would balance the wine gallon of 231 inches; it was, therefore, a gallon of 282 cubic inches. The wine was measured by the gauge of the wine gallon at Guildhall.

Taxation and philosophy now began to speculate, at the same time, upon the weights and measures of England. In 1685, the weight of a cubic foot of spring water was found, by an experiment made at Oxford, to be precisely 1,000 ounces avoirdupois; and, in 1696, the Winchester bushel was found to be of 2145.6 cubic inches, and to contain, also, 1,000 ounces avoirdupois weight of wheat. Yet so totally lost were all the traces of the old easterling pounds of twelve and fifteen ounces, that this coincidence between the cubic foot of water, and the 1,000 ounces avoirdupois, gave an erroneous direction to further inquiry; for the real original connection between the cubic foot

and the English bushel was not formed by avoirdupois weights and water, but by the easterling pound of twelve and fifteen ounces and Gascoign wine. It was the principle of the quadrantal and congius of the Romans, applied to the foot and the nummulary pound of the Greeks; the measure which, by containing eight pounds of wheat, was intended to contain, at the same time, ten of the same pounds of wine.

In the year 1688, the commissioners of the excise instituted an inquiry why beer and ale were always gauged at 282 cubical inches for the gallon, and other exciseable liquors by the wine gallon of 231 inches. They addressed a memorial to the Lords of the Treasury, stating these facts, and that, being informed the true standard wine gallon ought to contain only 224 cubical inches, they had applied to the Auditor and Chamberlains of the *Exchequer*, who, upon examination of the standard measures in their custody, had found three standard gallons, one of Henry the Seventh, and two of 1601, which an able artist employed by them had found to contain each 272 cubical inches; that, finding no wine gallon at the Exchequer, they had applied to the Guildhall of the city of London, where they were informed the true standard of the wine gallon was, and they had found, by the said artist, that the same contained 224 cubical inches only: and they added, that the gallons of other parts of the kingdom used for wine, had been made and taken from the Guildhall gallon.

In consequence of this memorial, the Lords of the Treasury, the 21st May, 1688, directed an authority to be drawn for gauging according to the Guildhall gallon; which was accordingly done: but the authority does not appear to have been signed. The ale gallon at the Treasury was of 282 inches; but the order of the Lords of the Treasury for the benefit of the revenue would have reduced the gallon, both for malt liquors and wine, to the Guildhall gallon of 224. The merchants immediately took the alarm, and petitioned that they might be allowed to *sell* by the same gauge, of 224 inches to the gallon, by which they were to be required to pay the customs and excise. The commissioners of the customs not agreeing with those of the excise, [illegible] proposal for a new gauge, the opinion of Sir Thomas Powis, the attorney general, was taken upon it, who advised against any departure from the usage of gauging, because the Guildhall gallon was not recognized as a legal standard, and because by any of those at the Exchequer the king would *be vastly a loser*.

Sir Thomas Powis then refers to the old statutes, prescribing that eight pounds should make a gallon; and particularly to that of 1496, requiring that the eight pounds should be of wheat, *and as* there was to be *one measure throughout the kingdom*, which could not be, unless it was adjusted by some one thing, and that seemed to be intended wheat, therefore *he did not know* how 231 cubical inches came to be taken up, but did not think it safe to depart from *the usage*, and therefore the proposal was dropped.

Sir Thomas Powis's *reasoning*, upon the statute of 1496, was perfectly correct. That statute, as well as many others, does ordain one

measure throughout the kingdom; it does ordain that *every gallon* shall contain eight pounds troy weight of wheat of thirty-two kernels to the pennyweight troy, which it strangely calls a sterling. Sir Thomas did not know how 231 inches came to be taken up; because he did not know that the statute of 1496 had substituted the troy for the old easterling weight in the composition of the gallon. It was that change that brought up the 231 inches: for, if eight easterling twelve ounce pounds of wheat filled a gallon of 217.6 inches, eight troy pounds of the same wheat must of necessity fill a gallon of 231.

The Guildhall wine gallon contained also eight troy pounds of wheat; but it was wheat thirty-two kernels of which weighed a pennyweight troy. Every kernel on the average was $\frac{1}{13}$ heavier than that which had been used for the composition of the gallon and bushel of 1266. The average kernel being specifically heavier, a pound weight of it occupied less space: on the other hand, the corn of lighter kernel would require a greater number of kernels to make up the same weight. The gallon of 1496 was to contain 61,440 kernels, weighing in the aggregate eight pounds troy: and they would fill a space of 224 cubic inches. To make the same weight, eight pounds troy would take 65,280 kernels of the wheat of 1266: but these 65,280 kernels would fill a space of 231 cubic inches. The difference between the two was a compound of the increase of numbers and the diminution of weight.

The advice of Sir Thomas Powis was, however, followed without further inquiry, and the use of the gauging rods was continued. But in 1700, the same inconsistency of the statutes, which, in the reign of Elizabeth had bred the quarrel between the informers and the herring barrels, generated a lawsuit between commerce and revenue. It has been seen, that, by a statute of 2 Henry VI., ch. 11, confirmed by subsequent acts of 1483, 1 Richard III., ch. 13, and of 1528, 28 Henry VIII., ch. 14, it had been ordained that every *butt* or pipe of wine imported should contain 126 gallons. The original statutes had reference to the Gascoign or Bordeaux wines, the casks of which were proportioned to the ton of thirty-two cubic feet. When afterwards the importation of Spanish wines became frequent, they were brought in casks of different dimensions from the assize: and the statute of Richard the Third, reciting that their butts had theretofore often been of 140 or 132 gallons, and complaining that they had been of late fraudulently reduced to 120 gallons or less, prescribed that they should thenceforth be of at least 126 gallons. The old fashion, of 140 gallons or more to the *butt* of Malmsey and other Spanish wines, was then restored: and as the law was satisfied if the butts were of 126 gallons or more, their size beyond the usual dimensions of the Gascoign standard remained unnoticed till the fiscal officer became interested in their contents. When customs and excise came to call for their share of the Malmsey, the merchants for some years paid upon the butt as if it had contained only the 126 gallons required by the law. But this calculation could not long suit the revenue. An action was brought by the officers of the customs

against Mr. Thomas Barker, an importing merchant, for the duties upon sixty butts of Alicant wine, for which he had paid, as if containing 126 gallons; but which, in fact, contained 150 gallons each. The crown officers showed, that the butt was to contain, by law, 126 gallons; and Mr. Leader, the city gauger, Mr. Flamstead, and other skilful gaugers, all agreed, that a wine gallon ought to contain 231 cubical inches, and no more; that there was such a gallon, kept from time out of mind at Guildhall, (they were in this mistaken, for it contained only 224 inches,) that the wine gallon was less than the corn gallon, which was of 272, and the ale gallon, which was of 282 cubical inches.

The defendant insisted that the laws had directed that a standard should be kept at the Treasury; that there was one there, containing 282 cubic inches; that by that measure he had paid the duty; that the Guildhall gallon was no legal standard: and merchants, masters of ships, and vintners, of twenty, thirty, forty years experience, all testified that Spanish wine always came in butts of 140 or 150 gallons or more. Whether Mr. Thomas Barker, when he came to *sell* his wine, retained his contempt for the Guildhall gallon, is not upon the record.

After a trial of five hours, the attorney general made it a drawn battle; agreed to withdraw a juror; and advised to leave the remedy to parliament: and this was the immediate occasion of the statute of 5 Anne, ch. 27. sec. 17., by which the capacity of the wine gallon is fixed, and has ever since remained, at 231 cubical inches. This act declares, that any round vessel, commonly called a cylinder, having an even bottom, and being seven inches diameter throughout, and six inches deep from the top of the inside to the bottom, or any vessel containing 231 cubical inches and no more, shall be deemed and taken to be a lawful wine gallon: and it is hereby declared, that 252 gallons, consisting each of 231 cubical inches, shall be deemed a tun of wine, and that 126 such gallons shall be deemed a butt or pipe of wine, and that 63 such gallons shall be deemed an hogshead of wine.

By an act of 13 William III. ch. 5, in 1701, the Winchester bushel had been declared the standard for the measure of grain; and any cylindrical vessel of 18½ inches diameter and 8 inches deep, was made a *legal* bushel. By a subsequent statute of 12 Anne, ch. 17 sec. 11, the bushel for measuring coal was to be of 19½ inches diameter from outside to outside, and was to contain a quart of water more than the Winchester bushel; which made it of 2217.62 cubical inches.

There are several late acts of parliament (1805, 45 George III.) which mention 272¼ cubic inches as the contents of the Winchester gallon, making a bushel of 2178 inches; and others which recognize the existence of measures different from any of the legal standards of the exchequer. By an act of 31 Geo. III. ch. 3, inspectors of corn returns are to make a comparison between the Winchester bushel and the measure commonly used in the city or town of their inspec-

tion, and to cause a statement in writing of such comparison to be hung up in some conspicuous place.

By these successive statutes, determining in cubic inches the capacity of the vessels by which certain specific articles shall be measured, the measures bearing the same denomination, but of different contents, are multiplied; and every remnant of the original uniformity of proportion has disappeared, with the exception of that between the wine and ale gallons, and that between the troy and avoirdupois weights.

By the English system of weights and measures before the statute of 1496, the London quarter of a ton was the one measure, to which the bushel for corn, the gallon, deduced by measure, for ale, and the gallon, deduced by weight, for wine, were all referred. The hogshead was a vessel deduced from the cubing of linear measure, containing sixty-three gallons, and measuring eight cubic feet. The gallon thus formed, contained 219.43 cubic inches. This wine gallon, by another law, was to contain eight twelve ounce pounds of wheat. One such pound of wheat, therefore, occupied 27.45 cubic inches. The vessel of eight times 27.45 cubic inches filled with wine, the liquor would weigh 54,857.1 grains of troy weight: and the weight of eight such gallons of wine would be 438,856.8 grains troy. The specific gravity of wine being to that of wheat as 175 to 143, the bushel thus formed would be of 2148.5 cubic inches; and its eighth part, or ale gallon, would be 268.5 inches. This is only two inches more than the standard Winchester bushel of the exchequer was found to contain, and two inches less than the bushel as prescribed by the act of 13 William III.; a difference which a variation in the temperature of the atmosphere is of itself adequate to produce. It proves, that the Winchester bushel has not without reason been preserved as the favorite of all standards, in spite of all the changes, errors, and inconsistencies, of legislation. But it also proves, that the ale and corn gallon ought to have continued as they originally were, of 268½ inches, and the wine gallon of 219½.

The troy and avoirdupois weights are in the proportions to each other of the specific gravity of wheat and of spring water. The twelve and fifteen ounce easterling pounds were intended to be proportional between the gravity of wheat and wine. But they were roughly settled proportions, estimating the weight of wheat to be to that of wine as four to five, and the gravity of wine and of water to be the same. Under the statute of 1496, the wine gallon was of 224 inches. If troy weight was to be introduced, a gallon of this capacity had the great advantage upon which the proportion of uniformity had originally been established. The gallon contained exactly eight pounds avoirdupois of wine. The pint of wine, was a pound of wine. The corn gallon of 272 inches, corresponding with it, had the same advantage. It was filled with eight pounds of corn: a pint of wheat, was a pound of wheat; and the bushel of 2176 inches contained 64 pounds avoirdupois of that wheat, 32 kernels of which weighed one pennyweight troy. But the hogshead, being of eight cubic feet,

could have contained only 61¾ gallons, and the ton would have been of 247.

The wine and ale gallons, now established by law, of 231 and 282 inches, are still in the same proportion to each other as the troy and avoirdupois weights: but neither of them is in any useful proportion to the bushel. The corn gallon only is in proportion to the bushel. Neither the wine nor the corn gallons are in any useful proportion either to the weights or the coins. But the troy and avoirdupois weights are, with all the exactness that can be desired, standards for each other: and the cubic foot of spring water weighs exactly 1000 ounces avoirdupois, by which means the ton, of thirty-two cubic feet measure, is in weight exactly 2000 pounds avoirdupois.

Such was originally the system of English weights and measures, and such is it now in its ruins. The substitution of cubic inches, to settle the dimensions of the gallons and bushels, which began with the last century, was a change of the *test* of their contents from gravity to extension. They had before been measured by number, weight, and measure: they are now measured by measure alone. This change has been of little use in promoting the principle of uniformity. As it respects the natural standard, it has only been a change from the weight of a kernel of wheat to the length of a kernel of barley: and although it has specified the particular standard bushels and gallons, selected among the variety, which the inconsistencies of former legislation had produced, it has very unnecessarily brought in a third gallon measure quite incompatible with the primitive system; and it has legalized two bushels of different capacity, so slightly different as to afford every facility to the fraudulent substitution of the one for the other; yet, in the measurement of quantities, resulting in a difference of between three and four per cent.

No further change in this portion of English legislation has yet been made. But the philosophers and legislators of Britain have never ceased to be occupied upon weights and measures, nor to be stimulated by the passion for uniformity. In speculating upon the theory, and in making experiments upon the existing standards of their weights and measures, they seem to have considered the principle of *uniformity* as exclusively applicable to identity, and to have overlooked or disregarded the uniformity of proportion. They found a great variety of standards differing from each other: and instead of searching for the causes of these varieties in the errors and mutability of the law, they ascribed them to the want of an immutable standard from *nature*. They felt the convenience and the facility of decimal arithmetic for *calculation*; and they thought it susceptible of equal application to the divisions and multiplications of *time*, *space*, and *matter*. They despised the primitive standards assumed from the stature and proportions of the human body. They rejected the secondary standards, taken from the productions of nature most essential to the subsistence of man; the articles for ascertaining the

quantities of which, weights and measures were first found necessary. They tasked their ingenuity and their learning to find, in matter or in motion, some *immutable* standard of linear measure, which might be assumed as the single universal standard from which all measures and all weights might be derived. In the review of the proceedings in France relative to this subject, we shall trace the progress and note the results hitherto of these opinions, which have there been embodied into a great and beautiful system. In England they have been indulged with more caution, and more regard to the preservation of existing things.

From the year 1757 to 1764, in the years 1789 and 1790, and from the year 1814 to the present time, the British parliament have, at three successive periods, instituted inquiries into the condition of their own weights and measures, with a view to the reformation of the system, and to the introduction and establishment of greater uniformity. These inquiries have been pursued with ardor and perseverance, assisted by the skill of their most eminent artists, by the learning of their most distinguished philosophers, and by the cotemporaneous admirable exertions, in the same cause of uniformity, of their neighbouring and rival nation.

Nor have the people, or the Congress of the United States, been regardless of the subject, since our separation from the British empire. In their first confederation, these associated states, and in their present national constitution, the people, that is, on the only two occasions upon which the collective voice of this whole Union, in its constituent character, has spoken, the power of *fixing* the standard of weights and measures throughout the United States has been committed to Congress. A report, worthy of the illustrious citizen by whom it was prepared, and, embracing the principles most essential to uniformity, was presented in obedience to a call from the House of Representatives of the first Congress of the United States. The eminent person who last presided over the Union, in the parting message by which he announced his intention of retiring from public life, recalled the subject to the attention of Congress with a renewed recommendation to the principle of decimal divisions. Elaborate reports, one from a committee of the Senate in 1793, and another from a committee of the House of Representatives, at a recent period, have since contributed to shed further light upon the subject: and the call of both Houses, to which this report is the tardy, and yet too early answer, has manifested a solicitude for the improvement of the existing system, equally earnest and persevering with that of the British parliament, though not marked with the bold and magnificent characters of the concurrent labors of France.

After a succession of more than sixty years of inquiries and experiments, the British parliament have not yet acted in the form of law. After nearly forty of the same years of separate pursuit of the same object, *uniformity*, the Congress of the United States have shown the same cautious deliberation: they have yet authorized no change of the existing law. That neither country has yet changed

4. That the cubic contents of the linear measure, in distilled water, at the temperature of its greatest contraction, should furnish at once the standard weight and measure of capacity.
5. That for every thing susceptible of being measured or weighed, there should be only one measure of length, one weight, one measure of contents, with their multiples and subdivisions exclusively in decimal proportions.
6. That the principle of decimal division, and a proportion to the linear standard, should be annexed to the coins of gold, silver, and copper, to the moneys of account, to the division of *time*, to the barometer and thermometer, to the plummet and log lines of the sea, to the geography of the earth and the astronomy of the skies; and, finally, to every thing in human existence susceptible of comparative estimation by weight or measure.
7. That the whole system should be equally suitable to the use of all mankind.
8. That every weight and every measure should be designated by an appropriate, significant, characteristic name, applied exclusively to itself.

This system approaches to the ideal perfection of *uniformity* applied to weights and measures; and, whether destined to succeed, or doomed to fail, will shed unfading glory upon the age in which it was conceived, and upon the nation by which its execution was attempted, and has been in part achieved. In the progress of its establishment there, it has been often brought in conflict with the laws of physical and of moral nature; with the impenetrability of matter, and with the habits, passions, prejudices, and necessities, of man. It has undergone various important modifications. It must undoubtedly still submit to others, before it can look for universal adoption. But, if man upon earth be an improveable being; if that universal peace, which was the object of a Saviour's mission, which is the desire of the philosopher, the longing of the philanthropist, the trembling hope of the Christian, is a blessing to which the futurity of mortal man has a claim of more than mortal promise; if the Spirit of Evil is, before the final consummation of things, to be cast down from his dominion over men, and bound in the chains of a thousand years, the foretaste here of man's eternal felicity; then this system of common instruments, to accomplish all the changes of social and friendly commerce, will furnish the links of sympathy between the inhabitants of the most distant regions; the metre will surround the globe in use as well as in multiplied extension; and one language of weights and measures will be spoken from the equator to the poles.

The establishment of this system of metrology forms an era, not only in the history of weights and measures, but in that of human science. Every step of its progress is interesting: and as a statement of all the regulations in France concerning it is strictly within the scope of the requisitions of both Houses, a rapid review of its origin, progress, and present state, with due notice of the obstacles which it

has encountered, the changes through which it has passed, and its present condition, is deemed necessary to the performance of the duty required by the call.

In the year 1790, the present prince de Talleyrand, then bishop of Autun, distributed among the members of the constituent assembly of France a proposal, founded upon the excessive diversity and confusion of the weights and measures then prevailing all over that country, for the reformation of the system, or rather, for the foundation of a new one upon the principle of a single and universal standard. After referring to the two objects which had previously been suggested by Huyghens and Picard, the pendulum and the proportional part of the circumference of the earth, he concluded by giving the preference to the former, and presented the project of a decree. First, that exact copies of all the different weights and elementary measures, *used* in every town of France, should be obtained and sent to Paris: Secondly, that the national assembly should write a letter to the British parliament, requesting their concurrence with France in the adoption of a natural standard for weights and measures, for which purpose Commissioners, in equal numbers from the French Academy of Sciences and the British Royal Society, chosen by those learned bodies, respectively, should meet at the most suitable place, and ascertain the length of the pendulum at the 45th degree of latitude, and from it an invariable standard for all measures and weights: Thirdly, that, after the accomplishment, with all due solemnity, of this operation, the French Academy of Sciences should fix with precision the tables of proportion between the new standards and the weights and measures previously used in the various parts of France; and that every town should be supplied with exact copies of the new standards, and with tables of comparison between them and those of which they were to supply the place. This decree, somewhat modified, was adopted by the assembly, and, on the 22d of August, 1790, sanctioned by Louis the Sixteenth. Instead of writing to the British parliament themselves, the assembly requested the king to write to the king of Great Britain, inviting him to propose to the parliament the formation of a joint commission of members of the Royal Society and of the Academy of Sciences, to ascertain the natural standard in the length of the pendulum. Whether the forms of the British constitution, the temper of political animosity then subsisting between the two countries, or the convulsions and wars which soon afterwards ensued, prevented the acceptance and execution of this proposal, it is deeply to be lamented that it was not carried into effect. Had the example once been set of a *concerted* pursuit of the great common object of *uniformity* of weights and measures, by two of the mightiest and most enlightened nations upon earth, the prospects of ultimate success would have been greatly multiplied. By no other means can the uniformity, with reference to the persons using the same system, be expected to prevail beyond the limits of each separate nation. Perhaps when the spirit which urges to the improve-

ment of the social condition of man, shall have made further progress against the passions with which it is bound, and by which it is tramelled, then may be the time for reviving and extending that generous and truly benevolent proposal of the constituent national assembly of France, and to call for a *concert* of civilized nations to establish one uniform system of weights and measures for them all.

The idea of associating the interests and the learning of other nations in this great effort for common improvement was not confined to the proposal for obtaining the concurrent agency of Great Britain. Spain, Italy, the Netherlands, Denmark, and Switzerland, were actually represented in the proceedings of the Academy of Sciences to accomplish the purposes of the national assembly. But, in the first instance, a committee of the Academy of Sciences, consisting of five of the ablest members of the academy and most eminent mathematicians of Europe, Borda, Lagrange, Laplace, Monge, and Condorcet, were chosen, under the decree of the assembly, to report to that body upon the selection of the natural standard, and other principles proper for the accomplishment of the object. Their report to the academy was made on the 19th of March, 1791, and immediately transmitted to the national assembly, by whose orders it was printed. The committee, after examining three projects of a natural standard, the pendulum beating seconds, a quarter of the equator, and a quarter of the meridian, had, on full deliberation, and with great accuracy of judgment, preferred the last; and proposed, that its ten millionth part should be taken as the standard unit of linear measure; that, as a second standard of comparison with it, the pendulum vibrating seconds at the 45th degree of latitude should be assumed; and that the weight of distilled water at the point of freezing, measured by a cubical vessel in decimal proportion to the linear standard, should determine the standard of weights and of vessels of capacity.

For the execution of this plan, they proposed six distinct scientific operations, to be performed by as many separate committees of the academy.

1. To measure an arc of the meridian from Dunkirk to Barcelona, being between nine and ten degrees of latitude, including the 45th, with about six to the north and three to the south of it, and to make upon this line all suitable astronomical observations.

2. To measure anew the bases which had served before for the admeasurement of a degree in the construction of the map of France.

3. To verify, by new observations, the series of triangles, which had been used on the former occasion, and to continue them to Barcelona.

4. To make, at the 45th degree of latitude, at the level of the sea, in vacuo, at the temperature of melting ice, observations to ascertain the number of vibrations in a day of a pendulum equal to the ten millionth part of the arc of the meridian.

5. To ascertain, by new experiments, carefully made, the weight in vacuo of a given mass of distilled water at the freezing point.

6. To form a scale and tables of equalization between the new measures and weights proposed, and those which had been in common use before.

This report was sanctioned by a decree of the assembly: and four committees of the academy were appointed; the three first of those enumerated objects having been intrusted to one committee, consisting of Mechain and Delambre. The experiments upon the pendulum were committed to Borda, Mechain, and Cassini; those on the weight of water to Lefevre Gineau, and Fabbroni; and the scale and tables to a large committee on weights and measures.

The performance of all these operations was the work of more than seven years. Two of them, the measurement of the arc of the meridian, and the ascertainment of the specific gravity of water in vacuo, were works requiring that combination of profound learning which is possessed of the facts in the recondite history of nature already ascertained, with that keenness of observation which detects facts still deeper hidden; that fertility of genius which suggests new expedients of invention, and that accuracy of judgment, which turns to the account, not only of the object immediately sought, but of the general interests of science, every new fact observed. The actual admeasurement of an arc of the meridian of that extent had never before been attempted. The weighing of distilled water in vacuo had never before been effected with equal accuracy. And, in the execution of each of these works, nature, as if grateful to those exalted spirits who were devoting the labors of their lives to the knowledge of her laws, not only yielded to them the object which they sought, but disclosed to each of them another of her secrets. She had already communicated by her own inspiration to the mind of Newton, that the earth was not a perfect sphere, but an oblate spheroid, flattened at the poles: and she had authenticated this discovery by the result of previous admeasurements of degrees of the meridian in different parts of the two hemispheres. But the proportions of this flattening, or, in other words, the difference between the circles of the meridian and equator, and between their respective diameters, had been variously conjectured, from facts previously known. To ascertain it with greater accuracy was one of the tasks assigned to Delambre and Mechain; for, as it affected the definite extension of the meridian circle, the length of the metre, or aliquot part of that circle which was to be the standard unit of weights and measures, was also proportionably affected by it. The result of the new admeasurement was, to show that the flattening was of $\frac{1}{334}$; or that the axis of the earth was to the diameter of the equator as 333 to 334. Is this proportion to the decimal number of 1,000 accidental? It is confirmed as matter of fact, by the existing theories of astronomical nutation and precession, as well as by experimental results of the length of the pendulum in various latitudes. Is it also an index to another combination of extension, specific gravity, and numbers, hitherto undiscovered? However this may be, the fact of the proportion was, on this occasion, the only object sought. This fact was attested by the

diminution of each degree of latitude, in the movement from the north to the equator; but the same testimony revealed the new and unexpected fact, that the diminution was not regular and gradual, but very considerably different at different stages of the progress in the same direction; from which the inference seems conclusive, that the earth is no more in its breadth than in its length, perfectly spherical, and that the northern and southern hemispheres are not of dimensions precisely equal.

The other discovery was not less remarkable. The object to be ascertained was the specific gravity of a given mass of water in vacuo, and at its *maximum* of density; that is, at the temperature where it weighs most in the smallest space. That fluids are subject to the general laws of expansion and contraction from heat and cold, was the principle upon which the experiments were commenced. It was also known that, in the transition of fluids to a solid state, the reverse of this phenomenon occurs, and that water, in turning to ice, instead of contracting, expands. It had been supposed that the freezing point was that at which this polarity of heat and cold, if it may be so called, was inverted, and that water, contracting as it cooled until then, began at once to freeze and to expand. The discovery made by Lefevre Gineau, and Fabbroni, was, that the change took place at an earlier period; that water contracts as it cools, till at five degrees above 0 of the centigrade, answering to forty-one of Fahrenheit's thermometer, and, from that term, gradually expands as it grows cold, till fixed in ice at 0 of the former, or thirty-two degrees of the latter.

In the admeasurement of the arc of the meridian, and in the weighing of the given volume of water, the standard measure and weights, previously established by the laws of France, were necessarily used. The identical measure was a toise or fathom belonging to the Academy of Sciences, which had been used for the admeasurement of several degrees of the meridian between the years 1737, and 1741, in Peru, and had thence acquired the denomination of the *Toise du Perou*. In 1766 it had served as the standard from which eighty others had been copied, and sent to the principal bailiwicks in France, and to the chatelet at Paris. The instruments used by Delambre and Mechain, for their mensurations, were two platina rods, each of double the length of this fathom of Peru. A repeating circle, a levelling instrument, and a metallic thermometer, consisting of two blades, one of brass, and the other of platina, and calculated to show the difference of expansion produced upon the two metals by the ordinary alternations of heat and cold in the atmosphere, all invented by the ingenious and skilful artist Borda, were also among the instruments used by the commissioners.

The weights with which the new standard was compared, were a pile of fifty marks, or twenty-five Paris pounds, called the weights of Charlemagne, and which, though not of the antiquity of that prince's age, had been used as standards for a period of more than five hundred years.

The fathom of Peru was divided into six standard royal feet of France, each foot into twelve thumbs, each thumb into twelve lines. The toise, therefore, was of seventy-two thumbs, or 864 lines. The standard metre of platina, the ten millionth part of the quarter of the meridian, measured by the brass fathom of Peru, was found to be equal to 443 lines, and 295,936 decimal parts of a line: and as it was found impossible to fix in the concrete form a division smaller than the thousandth part of a line, the definitive length of the metre was fixed at 443,296 lines, equivalent, by subsequent experiments of the academy, to 39.3827 English inches; by the latest experiments of captain Kater to 39.37079; and by those of Mr. Hassler, in this country, to 39.3802.

The Paris pound, mark-weight as it was called, (poids de marc,) of the pile of Charlemagne, consisted of two marks, each mark of eight ounces, each ounce of eight gros or drams, each gros of three deniers or *pennyweights*, and each denier of twenty-four grains. The pound, therefore, consisted of 9,216 grains, and was equal to fifteen ounces and fifteen penny weights, or 7,560 grains troy. The grain was rather more than four-fifths of the troy grain, and had probably, in the origin, been equivalent to the kernel of wheat, which the troy grain could scarcely have been. The cubic decimetre, or tenth part of the metre, of distilled water, at the temperature of its greatest density, weighed in vacuo, was found of equal weight with 18.827 grains $\frac{15}{100}$ of a grain; or two pounds, five gros, thirty-five grains $\frac{15}{100}$ of the mark weight: and this, by the name of the kilogramme was made the standard weight, its thousandth part being the gramme, or unit, equivalent to 15.44572 grains troy, or about two and one-fifth pounds avoirdupois.

The capacity of the vessel containing this water was at the same time made the standard of all measures, liquid or dry: it was called a litre, and is of the contents of 61.0271 cubic inches, about one-twentieth more than our wine quart. The metre was applied to superficial and solid measures, according to their proportions: the chain of ten metres being applied to land measure, and its square denominated an *arc*; the cubic metre was called a *stere*.

The principle of decimal arithmetic was applied exclusively to all these weights and measures: their multiples were all tenfold, and their subdivisions were all tenth parts.

To complete the system, a vocabulary of new denominations was annexed to every weight and measure belonging to it. As a circumstance of great importance to the final success of the system, it may be remarked that these two incidents, the exclusive adoption of decimal divisions, and the new nomenclature, have proved the greatest obstacles to the general introduction of the new weights and measures among the people.

It has indeed from its origin, like all great undertakings, been obliged to contend with the intemperate zeal and precipitation of its friends, not less than with prejudice, ignorance, and jealousy, of every description. The admeasurement of the meridian was commenced

at the very moment of the fanatical paroxysm of the French revolution. At every station of their progress in the field survey, the commissioners were arrested by the suspicions and alarms of the people, who took them for spies, or engineers of the invading enemies of France. The government was soon overthrown; the Academy of Sciences abolished; and the national assembly of the first constitutional monarchy, just at the eve of their dissolution, instead of waiting calmly for the completion of the great work which was to lay the foundation for a system to be as lasting as the globe, in a fit of impatience passed, on the 1st of August, 1793, a law declaring that the system should go immediately into operation, and assuming for the length of the standard metre the ten millionth part of the quadrant of the meridian according to the result of the old admeasurement of a degree in 1740, and arranging an entire system of weights and measures, in decimal divisions, with new denominations, all of which were to be merely temporary, and to cease when the definitive length of the metre should be ascertained. This extraordinary act was probably intended, as it directly tended, to prevent the further prosecution of the original plan: and though, soon after, it was followed by a decree of 11th September, 1793, authorizing the temporary continuance of the general committee of weights and measures, which had been appointed by the academy, yet, on the 23d December of the same year, a decree of Robespierre's committee of public safety dismissed from the commission Borda, Lavoisier, Laplace, Coulomb, Brisson, and Delambre, on the pretence that they were not republicans sufficiently pure. Mechain escaped the same proscription only because he was detained as a prisoner in Spain.

Yet even Robespierre and his committee were ambitious, not only of establishing the system of new weights and measures in France, but of offering them to the adoption of other nations. By a decree of that committee of 11th December, 1793, the board or commission of weights and measures were directed to send to the United States of America a metre in copper and a weight, being copies of the standards then just adopted. They were accordingly transmitted: and on the 2d of August, 1794, the two standards were, by the then French minister plenipotentiary Fauchet, sent to the Secretary of State, with a letter, recommending, with some urgency, the adoption of the system by the United States. This letter was communicated to Congress by a message from the President of the United States, of the 8th of January, 1795.

In the mean time the mensuration of the arc of the meridian was entirely suspended by the dismissal of Delambre, and the detention of Mechain. Its progress was renewed by a decree of the national convention of 7th April, 1795, (18 Germinal, An. 3) which abolished almost entirely the nomenclature of the temporary standards adopted in August, 1793, and substituted a new one, being that still recognized by the law, and the units of which have been already mentioned; the metre, the gramme, the arè, the litre, and the stere. To express the multiples of these units, the Greek words denominating

ten, a hundred, a thousand, and ten thousand, were prefixed as additional syllables, while their tenth, hundredth, and thousandth parts were depoted by similar prefixed syllables from the Latin language. Thus, the myria-metre is ten thousand, and the kilo-metre one thousand, the hecto-metre one hundred, and the deca-metre ten metres; each of those prefixed syllables being the Greek word expressive of those respective numbers; while the deci-metre, the centi-metre, and the milli-metre, are tenth, hundredth, and thousandth parts, signified by the Latin syllables respectively prefixed to them. The theory of this nomenclature is perfectly simple and beautiful. Twelve new words, five of which denote the things, and seven the numbers, include the whole system of metrology; give distinct and significant names to every weight, measure, multiple, and subdivision, of the whole system; discard the worst of all the sources of error and confusion in weights and measures, the application of the same name to different things; and keep constantly present to the mind the principle of decimal arithmetic, which combines all the weights and measures, the proportion of each weight or measure with all its multiples and divisions, and the chain of uniformity which connects together the profoundest researches of science with the most accomplished labors of art and the daily occupations and wants of domestic life in all classes and conditions of society. Yet this is the part of the system which has encountered the most insuperable obstacles in France. The French nation have refused to learn, or to repeat these twelve words. They have been willing to take a total and radical change of things; but they insist upon calling them by old names. They take the metre; but they must call one-third part of it a foot. They accept the kilogramme; but, instead of pronouncing its name, they choose to call one half of it a pound. Not that the third of a metre is a foot, or the half of a kilogramme is a pound; but because they are not very different from them, and because, in expressions of popular origin, distinctness of idea in the use of language is more closely connected with habitual usage than with precision of expression.

This observation may be illustrated by our own experience, in a change effected by ourselves in the denominations of our coins, a revolution by all experience known to be infinitely more easy to accomplish than that of weights and measures. At the close of our war for independence, we found ourselves with four English words, pound, shilling, penny, and farthing, to signify all our moneys of account. But, though English words, they were not English things. They were no where sterling: and scarcely in any two states of the Union were they representatives of the same sums. It was a Babel of confusion by the use of four words. In our new system of coinage we set them aside. We took the Spanish piece of eight, which had always been the coin most current among us, and to which we had given a name of our own—a dollar. Introducing the principle of decimal divisions, we said, a tenth part of our dollar shall be called a *dime*, a hundredth part a *cent*, and a thousandth part a *mille*. Like the French, we took all these new denominations from the Latin

language; but instead of prefixing them as syllables to the generic term dollar, we reduced them to monosyllables, and made each of them significant by itself, without reference to the unit of which they were fractional parts. The French themselves, in the application of their system to their coins, have followed our example; and, assuming the franc for their unit, call its tenth part a *decime*, and its hundredth a *centime*. It is now nearly thirty years since our new moneys of account, our coins, and our mint, have been established. The dollar, under its new stamp, has preserved its name and circulation. The cent has become tolerably familiarized to the tongue, wherever it has been made by circulation familiar to the hand. But the dime having been seldom, and the mille never, presented in their material images to the people, have remained so utterly unknown, that now, when the recent coinage of dimes is alluded to in our public journals, if their name is mentioned, it is always with an explanatory definition to inform the reader, that they are ten cent pieces; and some of them which have found their way over the mountains, by the generous hospitality of the country, have been received for more than they were worth, and have passed for an eighth, instead of a tenth, part of a dollar. Even now, at the end of thirty years, ask a tradesman, or shopkeeper, in any of our cities what is a dime or a mille, and the chances are four in five that he will not understand your question. But go to New York and offer in payment the Spanish coin, the unit of the Spanish piece of eight, and the shop or market-man will take it for a *shilling*. Carry it to Boston or Richmond, and you shall be told it is not a shilling, but nine pence. Bring it to Philadelphia, Baltimore, or the City of Washington, and you shall find it recognized for an eleven-penny bit; and if you ask how that can be, you shall learn that, the dollar being of ninety pence, the eighth part of it is nearer to eleven than to any other number: and pursuing still further the arithmetic of popular denominations, you will find that half eleven is five, or, at least, that half the eleven-penny bit is the fi-penny bit, which fi-penny bit at Richmond shrinks to four pence half-penny, and at New York swells to six pence. And thus we have English denominations most absurdly and diversely applied to Spanish coins; while our own lawfully established dime and mille remain, to the great mass of the people, among the hidden mysteries of political economy—state secrets.

Human nature, in its broadest features, is every where the same. This result of our own experience, upon a small scale, and upon a single object, will easily account for the repugnance of the French people to adopt the new nomenclature of their weights and measures. It is not the length of the words that constitutes the objection against them, nor the difficulty of pronunciation; for, fi-penny bit is as hard to speak and as long a word as kilogramme, and eleven-penny bit has certainly more letters and syllables, and less euphony, than myria-metre. But it is because, in the ordinary operations of the mind, distinctness of idea is, by the laws of nature, linked with the chain of association between sensible images and their habitual

denominations, more closely than with the exactness of logical analysis.

The nomenclature of the French metrology was established by the law of 7th April, 1795, although the metre and the kilogramme were only provisional and not definitive. It was known that the difference between the provisional and definitive metre and kilogramme would be very small, scarcely perceptible: and by that inverted logic which presides over all precipitate legislation, it was concluded that because it was small it would be unimportant: instead of which, sound reason would have inferred, that, to the purpose of uniformity, the smaller the difference was, the greater was the danger of its producing confusion between the temporary and the perpetual things which were to bear the same name.

But with the hasty call for a provisional metre and kilogramme, the law of 7th April, 1795, gave the definitive nomenclature, and directed the renewal of all the operations commenced under the direction of the Academy of Sciences; and the persons employed upon them were reinstated in their functions, by the committee of public instruction of the national convention. A commission of twelve persons, Berthollet, Borda, Brisson, Coulomb, Delambre, Haüy, Lagrange, Laplace, Mechain, Monge, Prony, and Vandermonde, was appointed on the 17th of April, 1795, for the final accomplishment of the original plan; the most important and laborious part of which, the admeasurement of the arc of the meridian, was immediately resumed by Delambre and Mechain. By them the whole distance from Dunkirk to Mont Jouy, near Barcelona, a distance of nine degrees and two thirds, more than a tenth part of the quadrant of the meridian, was measured by trigonometrical survey. The angles formed by every station with those next before and after it, rectified by the angles of elevation and depression formed by the inequalities on the surface of the ground, to reduce the whole to the level of the horizon, were measured and referred to the measure of two bases, one between Melun and Lieusaint, the other between Vernet and Salces, near Perpignan; each serving as a corrective upon the other. Observations of azimuth ascertained the direction of the sides of the triangles, with reference to the meridian; and astronomical observations ascertained the celestial arc, corresponding with that which was measured upon the earth. The distance from Dunkirk to Rhodez, about 450 miles, was performed by Delambre; and that from Barcelona to Rhodez, upwards of 200 miles, by Mechain. The base of Melun was of 6075.90 and that of Perpignan 6006.25 toises, each nearly seven miles: and though at the distance of near 400 miles from each other, the base of Perpignan, calculated by inference from the chain of triangles between them, differed from its actual admeasurement less than one foot. The portion of the distance allotted to Mechain was less than one third of the whole; but, traversing the Pyrenees, and being chiefly upon the Spanish territories, was attended with more difficulties than those encountered by his associate. Mechain, in the execution of his task, had formed the project of extending the survey

to the Balearic islands, which would have made the portion of the arc south of the forty-fifth degree equal to that northward of it. With a firmness and perseverance of pursuit, amidst innumerable obstacles, he had proceeded far in the execution of this supplementary plan. His triangles were already extended from Barcelona to Tortosa. His stations had been selected to Cullora. Six or seven triangles more would have carried his work to its termination in the island of Ivica. Arrested by a fever, in his first progress, and compelled then to abandon the attempt, he had resumed it after the result of the original plan had been ascertained, and the new system had been finally established by law. The hand which sets bounds to all human pursuits again and definitively met and closed his career. He died on the 20th of September, 1805, at Castellon de la Plana, in the Spanish province of Valencia. His more fortunate associate, Delambre, has published, in three quarto volumes, under the title of the "Basis of the metrical decimal system, or measure of the arc of "the meridian between Dunkirk and Barcelona," all the details and results of this admirable operation. A fourth volume yet remains to be published, which will contain the account of the actual execution since the death of Mechain, of the idea which he had conceived of extending the admeasurement to the island of Formentara, and of the additional extension of it northward to the Shetland islands, by connecting it with the trigonometrical survey of Great Britain. This work, in passing to future ages, a monument of the philosophy, science, public spirit, and active benevolence of our own, will redeem, by the martyrdom of genius and learning in the cause of human happiness, the blood-polluted glories of cotemporaneous war.

The reports of the proceedings of Delambre and Mechain, as well of their field surveys as of their astronomical observations, and all their calculations, were submitted to the inspection, scrutiny, and revision, of a committee of the mathematical and physical class of the national institute, that phœnix of science which had arisen from the ashes of the academy of sciences. The observations to ascertain the length of the pendulum, and the experiments for determining the specific gravity of distilled water at its maximum of density, were submitted to the same ordeal. Two reports upon the whole result were made to the class, one by Trallès of the Helvetic Confederation, the other by Van Swinden of the Netherlands, two of the foreign associates, who had been invited to co-operate in the labor, and to participate in the honor of the undertaking. These two reports, combined by Van Swinden into one, were then reported from the class to the general meeting of the institute, and by that body, with all suitable solemnity, to the two branches of the national assembly of France, on the 22d of June, 1799, together with a definitive metre of platina, made by Lenoir, and a kilogramme of the same metal, made by Fortin. They were introduced by an appropriate address at the bar of the two houses, by the presiding member of the national institute, La Place; to which answers were returned by the respective presidents of the two legislative chambers. On the same day, the

standard metre and kilogramme were deposited in the hands of the keeper of the public archives; and a record of the fact was made and signed by him, and by all the members of the institute, foreign associates, and artists, whose joint labors had contributed to the consummation of this more than national undertaking.

No apology will be deemed necessary by Congress for dwelling upon these details which signalized the establishment of the new French metrical system. The spectacle is at once so rare and so sublime, in which the genius, the science, the skill, and the power of great confederated nations are seen joining hand in hand in the true spirit of fraternal equality, arriving in concert at one destined stage of improvement in the condition of human kind; that, not to pause for a moment, were it even from occupations not essentially connected with it, to enjoy the contemplation of a scene so honorable to the character and capacities of our species, would argue a want of sensibility to appreciate its worth. This scene formed an epocha in the history of man. It was an example and an admonition to the legislators of every nation, and of all after-times.

On the 10th of December, 1799, (19 Frimaire 8,) the temporary metre and kilogramme, which had been ordained by the laws of 1st August, 1793, and 7th April, 1795 (18 Germinal 3,) were abolished. That metre had been of 443 lines and $\frac{44}{100}$ of a line of the ancient foot, standarded by the fathom of Peru. The new and definitive metre was fixed at 443 lines $\frac{296}{1000}$. The difference between them was about $\frac{1}{7}$ of a line, or $\frac{1}{100}$ of our inch, a difference imperceptible for all ordinary uses; but very important as a standard variety, and immediately apparent when multiplied to the cube for the measure of capacity and the weight. Thus the temporary kilogramme had been of 18,841 grains mark weight, while the new and definitive kilogramme was reduced to 18,827.15 grains.

During the violent ebullitions of the most inflammatory period of the French Revolution, it had been imagined that in the reformation of the system of weights and measures, upon the principle of uniformity, the mensuration of time ought to be included. But this was a different project from that of the reformed metrology, originating in motives less pure and ingenuous, connected with purposes interfering with religious impressions, and quite inconsistent with one of the principal expedients of perpetuating the identity of the new weights and measures. The length of the pendulum beating seconds, it has been seen, is, in the new metrical system, the test of verification for that of the metre, in case the original platina standard should be lost. The pendulum beating seconds vibrates 86,400 times in the solar day of 24 hours. But, the fiery spirits of the Revolution called for a reformation of the calendar, for a new constitution of the seasons, and above all, for decimal divisions. The establishment of the French republic was a new æra to the world. It had taken place on the 22d of September, 1792, the day of the autumnal equinox, when the sun entered the sign of the Balance, the symbol of equality. Before it the Christian æra was to disappear. The new year was to

commence with that day. The division of twelve months was to be retained; but they were all to be of three times ten or thirty days. The division of weeks of seven days, beginning with one specially devoted to the worship of the Creator, and repose, was to be abolished; but every tenth day was to be dedicated to some moral abstraction or virtue, such as liberty, equality, fraternity, patriotism, conjugal affection, filial piety, old age, and once a year to the Supreme Creator, whose existence was formally authenticated by a decree of the national convention. After their thirty-six decads, there remained five, and in leap-year six complementary days, to which they gave a name which can scarcely be repeated with decency; but which were to be all holidays, and in which were to be revived the Olympic games of ancient Greece. The names of the months were to be significant. The three successive months, composing each of the four seasons, were to have the same terminating syllable, which in its sound should convey to the ear its distinctive character. The first of the four was *aire*, which was supposed to indicate the solemn and majestic tranquillity of autumn; the second *ose*, a dull and heavy sound, marking the torpor and frigidity of winter; the third *al*, which had all the reviving influence and liquid harmony of spring; and the fourth *dor*, burning to the fancy with the vivid ardors of summer. To these terminating syllables, each month had an appropriate prefix. Thus, in autumn, Vendemi-aire, was the month of vintage; Brum-aire, the month of fogs; and Frim-aire, the month of incipient cold. From the winter solstice to the vernal equinox, there was Niv-ose, the month of snow; Pluvi-ose, the month of rain; and Vent-ose, the month of wind. These were succeeded by the darlings of the year; Germin-al, the month of buds; Flore-al, the month of blossoms; and Prairi-al, the month of blooming meads. The procession closed with the bounties and fervors of summer; Messi-dor, the month of harvests; Thermi-dor, the month of heat; and Fructi-dor, the month of fruit. The days of their decad were to be denominated by their numbers from one to ten; as Primedi, first day, Duodi, second day, and so on to Decadi, the tenth day; which was to be the day of relaxation from labor, and of meditations upon virtue. But the clashing of the new calendar with the new metrology was the division of the solar day, not into 24 hours, of 60 minutes, with 60 seconds to the minute; but into ten hours, each of 100 minutes, and each minute of 100 seconds. The pendulum of that day, therefore, would vibrate 100,000 times, and would be of quite a different length from that which was to be the test of verification to the metre.

This system has passed away, and is forgotten. This incongruous composition of profound learning and superficial frivolity, of irreligion and morality, of delicate imagination and coarse vulgarity, is dissolved. This statue, with the form of Apollo and the face of Silenus, has crumbled into dust; but it was established by a law of the 5th of October, 1792, and for the space of twelve years it was the ca-

lendar of the French nation. Henceforth it will only be remembered as preparing future problems in chronology.

The division of the day into a hundred thousand parts had some reasons to recommend it, but was the first part of the system that was abandoned. It had been decreed as compulsory, with the new nomenclature of the calendar, on the 24th of November, 1793, (4 Frimaire 2,) but this regulation was indefinitely suspended by the law of 7th April, 1795, (18 Germinal 3.)

On the 8th of April, 1802, when a First Consul, soon to be for life, had produced some perturbation of that balance, the symbol of equality in which the sun had first shone upon the French Republic, there passed a law, retaining the *equinoctial* or republican calendar for all civil purposes, but resuming the *solstitial* or Gregorian calendar so far as to restore its week of seven days with their names, and its Sabbath of the first of them. The terms *equinoctial* and *solstitial*, in this law, applied to the new and old calendars, seem studiously selected to veil the balance of equality on one side, and the Sabbath of religion on the other.

But on the 9th of September, 1805, (22 Fructidor 13,) in the month of *fruits*, and when the sun of the French Republic had got, if not into the sign, at least deep into the constellation, of the Lion; when the legend of her coins bore on one side the name and head of Napoleon Emperor, and on the other, the name of the French Republic, a senatus consultum ordained, that, from the 11th of that dull and heavy month of snows of the 14th year, the 1st of January, 1806, should re-appear, and the Gregorian calendar should be restored to use throughout the Republican Empire.

The decimal divisions, and the fanciful contexture of the equinoctial calendar, were a sort of episode to the new system of metrology. The attempt to decimate the year in its number of days was equally useless and absurd. The five successive holidays at the close of the year, just at the season of the vintage, with the institution of athletic sports, were a waste of time, and a provocatión to mischievous idleness, ill compensated by the retrenchment of sixteen Sundays in the year, at the distance of a week from each other, and devoted to the exercises of piety.

The application of the metrical system to geography and astronomy was a much more rational part of the project; but has been attended with difficulties in execution hitherto insuperable. In adopting an aliquot decimal part of the quadrant of the meridian for the unit of long measures, it formed a natural division of the quadrant itself into ten parts, each of ten degrees. The degree would then have been of 100,000 metres, and the number of degrees to encircle the earth would have been four hundred. The degree, which is now of about sixty-nine English miles, would have been of about sixty-two, and the facility of all astronomical, geographical, and nautical, calculations, would have been much increased. But it would have rendered useless all the tables indispensable to the navigator, astronomer, and geographer; and, if it had not produced the same effect

upon all the maps and charts now in use, it would have tended to produce confusion between those of the old and those of the new system. The ancient division of the sphere, and, consequently, of the circle, into 360, and therefore into quadrants of 90 degrees, originated in the coincidence of the daily rotations of the earth in its orbit round the sun, or the apparent motion of the sun in the ecliptic, which, as near as the approximation of numbers can bring it, is of one degree every day. The division of the day into twenty-four hours, each of sixty minutes, is founded on a similar coincidence of time in the rotation of the earth round its axis, and the apparent daily revolution of the firmament round the earth resulting from it; giving for the rising or setting of each sign of the zodiac a term of two hours, and for each degree of the circle described by the earth in its rotation a term of four minutes, or fifteen degrees to the hour. The adoption of the decimal divisions for the quadrant of the meridian, and for the circle, would have disturbed all these harmonies, as well as that of the sexagesimal division of the circle by the radius; a division not perfectly exact, since the radius is not exactly the sixth part of the circumference, but which, having been found the most convenient for practice, has been established from the remotest antiquity, and, being already used by all the civilized nations of the earth, could not, by being set aside, tend to uniformity, unless the method to supply its place could be alike secure of universal adoption.

The divisions of the barometer had always been marked in inches and lines. The application to it of the decimetre, its multiples and divisions, had for observation and calculation the usual conveniences of the decimal arithmetic. The graduation of the thermometer had always been arbitrary and various in different countries. The principle of the instrument was every where the same, that of marking the changes of heat and cold in the atmosphere, by the expansion and contraction which they produced upon mercury or alcohol. The range of temperature between boiling and freezing water was usually taken for the term of graduation, but, by some, it was graduated downwards from heat to cold, and by others upwards from cold to heat. By some the range between the two terminating points was divided into 80, 100, 150, or 212, degrees. One put the freezing, and another the boiling, point at 0. Reaumur's thermometer, used in France, began with 0 for the freezing point, and placed the boiling point at 80. Fahrenheit's, commonly used in England, and in this country, has the freezing point at 32, and the boiling point at 212. The centigrade thermometer, adopted by the new system, begins at the freezing point at 0, and places the boiling point at 100: its graduation, therefore, is decimal, and its degrees are to those of Reaumur as five to four, and to those of Fahrenheit as five to nine.

The application of the new metrology to the moneys and coins of France, has been made with considerable success; not, however, with so much of the principle of uniformity as might have been expected, had it originally formed a part of the same project. But the reformation of the coins was separately pursued, as it has been with us:

and, as the subject is of great complication, it naturally followed that, from the separate construction of two intricate systems, the adaptation of each to the other was less correct than it would have been, had all the combinations of both been included in the formation of one great master-piece of machinery. It is to be regretted that, in the formation of a system of weights and measures, while such extreme importance was attached to the discovery and assumption of a national standard of long measure as the link of connection between them all, so little consideration was given to that primitive link of connection between them, which had existed in the identity of weights and of silver coins, and of which France, as well as every other nation in Europe, could still perceive the ruins in her monetary system then existing. Her livre tournois, like the pound sterling, was a degeneracy, and a much greater one, from a pound weight of silver, but it had scarcely a seventieth part of its original value. It was divided into twenty sols or shillings; and the sol was of twelve deniers or pence. It had become a mere money of account: but the ecu, or crown, was a silver coin of six livres, nearly equivalent to an ounce in weight, and there were half crowns, and other subdivisions of it, being coins of one-fourth, one-fifth, one-eighth, and one-tenth, of the crown. There were also coins of gold, of copper, and of mixed metal called billon, in the ordinary circulations of exchange. Shortly after the adoption of the provisional or temporary metre and kilogramme, a law of 16 Vendemaire 2, (7th October, 1793,) prescribed that the principal unit, both of gold and of silver coins, should be of the weight of ten *grammes*. The proportional value of gold to silver was retained as it had long before been established in France, at 15½ for one: the alloy of both coins was fixed at one-tenth; and the silver franc of that coinage would have been worth about thirty-eight cents, and the gold franc a little short of six dollars. This law was never carried into execution. It was superseded by one of 15th August, 1794, (28 Thermidor 3,) which reduced the silver franc to five grammes: and it was not until after a law of 7 Germinal 11, (28th March, 1803,) that gold pieces of twenty and forty francs were coined at 155 of the former to the kilogramme.

In the new system, the name of *livre*, or pound, as applied to money or coins, was discarded: but the *franc* was made the unit both of coins and moneys of account. The franc was a name which had before been in common use as a synonymous denomination of the *livre*. The new franc was of intrinsic value $\frac{1}{10}$ more than the livre. The franc is decimally divided into *decimes* of $\frac{1}{10}$, centimes of $\frac{1}{100}$, and millimes of $\frac{1}{1000}$, of the unit; but the smallest copper coin in common use is of five centimes, equivalent to about one of our cents. The silver coins are of one-fourth, one-half, one and two francs, and of five francs; the gold pieces, of twenty and forty francs. The proportional value of copper to silver is of one to forty, and that of billon to silver of one to four: so that the kilogramme should weigh 5 francs of copper coin, 50 of the billon, 200 of the silver, and 3100 of the gold coins: and the decime of billon should weigh precisely

two grammes. The allowances, known by the name of remedy for errors in the weight and purity of the coins, are of $\frac{2}{100}$ upon copper, which is only for excess: those upon the weight of billon are of $\frac{14}{1000}$; upon silver $\frac{20}{1000}$ for one quarter francs, $\frac{14}{1000}$ for one-half francs, and of $\frac{10}{1000}$ or one per cent. on one and two franc pieces, and of $\frac{6}{1000}$ for five franc pieces. That of the gold coins is of $\frac{4}{1000}$; all, excepting the copper, allowances either for excess or deficiency. But the practice of the mint never transgresses in excess; and the deficiency is always nearly the whole allowed by law. The remedy of alloy is of $\frac{7}{1000}$, either of excess or defect, for billon; of $\frac{3}{1000}$ for silver; and of $\frac{2}{1000}$ for gold. It is said that the actual purity of the coins, both of gold and of silver, is within $\frac{1}{1000}$ less than the standard.

The conveniences of this system are,

First, The establishment of the same proportion of alloy to both gold and silver coins, and that proportion decimal.

Secondly, The established proportions of value between gold, silver, mixed metal, and copper coins.

Thirdly, The adaptation of all the coins to the weights in such manner as to be checks upon and tests of each other. Thus the decime of billon should weigh two grammes, the franc of silver five, the two franc piece of silver and the five centime piece of copper each ten, and the five franc piece fifty. The allowances of remedy disturb partially these proportions. These are practices continued in all the European mints, after the reasons upon which they were originally founded have in a great measure ceased. In the imperfection of the art, the mixture of the metals used in coining, and the striking of the coins, could not be effected with entire accuracy. There would be some variety in the mixture of metals made at different times, though in the same intended proportions, and in different pieces of coin, though struck by the same process and from the same die. But the art of coining metals has now attained a perfection, that such allowances have become, if not altogether, in a great measure unnecessary. Our laws make none for the deficiencies of weight: and they consider every deficiency of purity as an error, for which the officers of the mint shall be *excused* only in case of its being within $\frac{1}{144}$ part, or about $\frac{7}{1000}$; for if it should exceed that, they are disqualified from holding their offices. Where the penalty is so severe, it is proper that the allowance should be large; but, as obligatory duty upon the officers of the mint, an allowance of $\frac{1}{1000}$ would be amply sufficient for each single piece, and no allowance should be made upon the average.

Among the difficulties attending all innovations upon established usages relative to weights and measures, are their application to the tonnage of ships and boats, and to the form and size of casks. We have seen, in the review of the history of English weights and measures, how Henry the Seventh's change of the Rochelle for the troy pound affected the barrels of herring fishers, the hogshead of claret, and the butts of Alicant wine. The tonnage of ships, on the old established metrologies, was founded, like their weights and measures

of capacity, upon a principle of combining specific gravity and occupied space. The ton of shipping was adapted both for a weight and a measure. The capacity of a ship as a measure is ascertained by its internal cubical dimensions, which, before the change of system in France, gave 42 royal cubic feet to a ton. The mode of admeasurement was, like ours, a complicated multiplication and division of length, breadth, and thickness, with given deductions and estimates, all finally divided by the standing number, 94, as ours is by 95, and the quotient of which gives the number of what may be called custom house *tons*. But the French ordinances, like our law, did not indicate by what specific measure this length, breadth, and thickness, were to be taken. It was always perfectly understood here, that it is in feet, and tenths of feet; and in France, that it was in royal feet and their tenths. Nothing can afford a more striking illustration of the construction which long established usage can give to law, than this admeasurement in feet and tenth parts of a foot; differing from that used in all other cases of feet and inches or twelfth parts; not expressly directed by law, and yet practised for these thirty years, probably without a question upon the meaning of the law. The attempt in France to apply it to the admeasurement by the metre, without changing the final common divisor 95, signally shows how cautiously complications of weights, measures, numbers, and coins, must be dealt with. The law of the 12th Nivose 2, (1st January, 1794,) directed those measures to be taken in the new metre and divisions, without changing the final divisor, 95, to produce a number of *tons*. The consequence would have been, that the cubic numbers divided by 95 would have been metres and their decimal parts, instead of feet and their decimal parts; and the quotient would have reduced the tonnage to about one third of its proper dimensions. To have produced a quotient of a number of tons, their final divisor should have been 30 instead of 95. This mistake was precisely the same as that of the British parliament of 1496, when, thinking to re-enact the law of 1266, they prescribed a bushel to be made from sixty-four gallons *troy* weight of wheat of thirty-two kernels to the troy pennyweight, instead of a bushel of sixty-four pounds sterling at fifteen ounces to the pound, of wheat, thirty-two kernels of which weighed the penny sterling of Henry the Third. It was the same mistake which the Greek Church yearly repeats in celebrating Easter, by the Julian calendar of 365 days 6 hours to the year, and the lunar cycle of nineteen years. And, to come nearer home to ourselves, it was the same mistake which our own statute book discloses, in estimating the British pound sterling four dollars forty-four cents, because one hundred and ten years ago Sir Isaac Newton found the Spanish Mexican piece of eight to be of the intrinsic value of four shillings and six pence sterling.

The burden of a ship, as a weight, is ascertained by the depth of the water that she draws. On the principles of hydrostatics, the weight of any floating object is equal to that of the mass of water displaced by it: and the weight of a ship's burden is the difference

between the column of water drawn by her when in ballast, and when laden. The draft of water, therefore, measured by the metre and its divisions, gives of itself the result, in tons of 1000 kilogrammes, by the mere multiplication of the dimensions of the vessels; the result giving cubic metres of water, each of which, saving the difference between the specific gravity of river or sea, and distilled water, will of course be of 1000 kilogrammes.

The size of casks was among the objects intended to be included in the reformed system: and regulations were adopted prescribing, first, that their dimensions should be of uniform proportions, the diameter of the two ends, that of the centre, and the length of the barrels, being as 8, 9, and 10½ to each other; and, secondly, that their contents should be in decimal or subdecimal divisions of *litres*. Tables were published prescribing the dimension in millimetres of the length and diametres of each cask, from the contents of 50 to those of 1000 litres. But the forms and proportions of casks are different in different countries, and in different places of the same country. These differences may arise from the nature of the substance, liquid or dry, which they are to contain; from the materials of which they are made or with which they are bound; from laws or usages long established, to which the cooper, the vintner, or brewer, the merchant, the miller, and other numerous professions dealing in articles which are packed in barrels, have accommodated themselves from time immemorial. With regard to articles of exportation, the laws of other countries also interpose, by prohibiting their admission in casks of other dimensions than those which have been used: and the instruction of 2 Frimaire 11, (23d November, 1802) revoked the regulation of Pluviose 7, (January, 1799) requiring only thenceforth, according to the proclamation of 11 Thermidor 7, (29th July, 1799,) that no wines or other liquors should be exposed to sale, unless branded with the mark of their contents in litres; with a recommendation, however, that casks should be made as much as possible in the dimensions and proportions which had been ordained in January, 1799.

The intentions of reformation upon the principles of uniformity and of decimal divisions were, in the novelty of the system, extended to the mariner's compass, which it was proposed to divide into forty rhumbs of wind, instead of thirty-two; to the log-line, the usual divisions of which are proportioned to the marine mile of sixty to a degree; to the sounding line, which had usually been divided by French mariners, not into their fathoms of six, but into *brasses* of five royal feet; and to the cable's length, which was of 100 toises. Some of these were consequences of the project for dividing decimally time, and the quadrant of the circle: and the others followed from the substitution of the metre for the foot and toise.

The lapidaries and dealers in precious stones, throughout Europe, have a weight peculiar to themselves, under the denomination of the carat, which is nearly of the weight of three grains troy, and which they divide into halves, quarters, eighths, and sixteenths. As this trade is of extremely limited extent, even in Europe, it was to

be considered only in the organization of a system for universal application.

It has been observed, that, among the difficulties hitherto insuperable, which have opposed the establishment in fact of this system, thus apparently established by law, the most unmanageable of all has been found to be the adoption of the nomenclature. It is curious to observe the various expedients of legislation, to accommodate itself to the popular humors in this respect.

The law of the 1st of August, 1793, established all the principles of the new system, but under denominations different from those which had ever been used before, and not less different from those which have been adopted since. It directed the Academy of Sciences to compose an elementary book, containing a clear explanation of the new weights and measures, with tables of equalization, and instructions for adapting them to those which had been in use until then. A few days afterwards the academy was itself abolished: but the duty of composing the book was assigned to a temporary commission, or board of weights and measures, consisting of the same persons who had been employed as members of the academy on the work. The book was composed and published in the year 1794. But, on the 19th of January of that year, (30 Nivose 2,) the nomenclature had already been changed; and, on the 7th of April, 1795, (18 Germinal 3,) a nomenclature entirely new, with the exception of three or four words, was enacted. The names ordained by this law of 7th April, 1795, are still the proper technical appellations, and have already been mentioned, with their Greek and Latin prefixes of decimal multiples and subdivisions. The same law directed that weights or measures might be made of double, or of half the units and their tenth part, or tenth fold amounts; but that no other subdivision, or multiple, such as thirds, or quarters, or sixth, or eighth parts, should be allowed. The law of 19 Frimaire 8, (10th December, 1799,) declared the platina metre of 443,296 lines, and the kilogramme of 18,827.15 grains mark weight, to be the definitive standard weight and measure; on the 13th Brumaire 9, (4th November, 1800,) the executive directory issued an arrêté, or order, authorizing, either in public writings or in habitual usage, what they called a translation into French words of the authentic nomenclature; so that the myriametre might be called a league, the kilometre a mile, the litre a pint, the kilogramme a pound, the hectogramme an ounce, the gramme a denier, and so of all the rest, excepting the *metre*, which was to have no synonymous or translated name, and the *stere*, for firewood and measures of solidity. This ordinance was never executed: and the minister of the interior, by an order of 30 Frimaire 14, (21st December, 1805,) directed all the subordinate administrations to use exclusively the denominations prescribed by the law of 7th April, 1795.

An imperial decree of 12th February, 1812, presents the subject under a new aspect, by ordaining,

1. That the *units* of weights and measures should remain unchanged, as established by the law of 10th December, 1799.

2. That the minister of the interior should cause to be made *instruments* for weight and mensuration, presenting the fractions or multiples of the said units the most commonly used in commerce, and accommodated to the wants of the people.
3. That these instruments should bear on their respective faces the comparison of the divisions and denominations established by law, with those which had been formerly used.
4. That after a term of ten years a report should be made to the emperor of the result of experience upon the improvements of which the system of weights and measures might be susceptible.
5. That in the mean time the legal system should continue to be taught in all the schools, and be exclusively used in all the public offices, and in all markets, halls, and commercial transactions.

For the execution and explanation of this decree, an ordinance was, on the 28th of March, 1812, issued by the minister of the interior, of the following purport:

Art. 1. Permission was granted to employ for the purpose of commerce,

1. A long measure equal to two metres, to be called a toise, and to be divided into six feet.
2. A measure equal to one third of the metre, to be called a foot, to be divided into twelve thumbs, and the thumb into twelve lines.

Each of these measures shall bear on one side the corresponding divisions of the metre, that is to say: the toise, two metres, divided into decimetres, and the first decimetre into millimetres; and the foot, three decimetres and one third, divided into centimetres and millimetres, in all $333\frac{1}{3}$ millimetres.

Art. 2. All cloths may be measured by a stick equal in length to twelve decimetres, to be called an *ell*, (aune,) which shall be divided into halves, quarters, eighths, and sixteenths, as well as into thirds, sixths, and twelfths. It shall bear on one of its sides the corresponding divisions of the metre, in centimetres only; that is to say, one hundred and twenty centimetres, numbered from ten to ten.

Art. 4. Corn and other dry measure articles may be measured, *in sales at retail*, by a vessel equal to one-eighth of the hectolitre, which shall be called a boisseau, and shall have its double, its half, and its quarter.

Art. 5. For *retail* sales of corn, seeds, meal, and roots, green or dry, the litre may be divided into halves, quarters, and eighths.

Art. 7. For *retail* sales of wine, brandy, and other liquors, measures of one-quarter, one-eighth, and one-sixteenth of the litre may be used; each of which measures shall be called by a name signifying its proportion to the litre.

Art. 8. For retail sales of all articles which are sold by weight, the shopmen may employ the following *usual* weights:

The pound, (livre,) equal to half a kilogramme, or 500 grammes, which shall be divided into sixteen ounces.

The ounce, (once,) or sixteenth part of the pound, which shall be divided into eight gros.

The gros, or eighth part of the ounce, which shall be divided into halves, quarters, and eighths.

They shall bear, with their appropriate names, the indication of their weight in grammes, namely:

The pound - - -	500 grammes
Half pound - - -	250
Quarteron - - -	125
Eighth, or ½ quarter - -	62.5
Ounce - - -	31.3
Half ounce - - -	15.6
Quarter ounce, 2 gros - -	7.8
Gros - - - -	3.9

And such is at this day the system of weights and measures, or, rather, such are the systems existing in France in their present condition; for, it cannot escape observation, that this decree and explanatory ordinance engraft upon the legal system an entirely new system, founded upon different, and, in many important respects, opposite principles. So that the result hitherto of the most stupendous and systematic effort ever made by a nation to introduce uniformity in their weights and measures, has been a conflict between four distinct systems:

1. That which existed before the Revolution.

2. The temporary system established by the law of 1st August, 1793.

3. The definitive system established by the law of 10th December, 1799. And,

4. The *usual* system, *permitted* by the decree of 12th February, 1812.

This last decree is a compromise between philosophical theory and inveterate popular habits. Retaining the principle of decimal multiplication and division for the legal system, it abandons them entirely in the weights and measures which it allows the people to use. Instead of the metre and its decimals, it gives the people a toise of six feet, an aune of three feet and one-fifth, a foot of twelve thumbs, and a thumb of twelve lines. And these measures, instead of divisions exclusively decimal, are divisible in halves, thirds, quarters, sixths, eighths, twelfths, and sixteenths. Instead of a decimated kilogramme, it gives them a pound of sixteen ounces, an ounce of eight gros, and a gros of seventy-two grains. The measures of capacity, wet and dry, have the same indulgence: and while the standard weight and measure are deposited in the national archives, the people have restored to them for use all the names and divisions of their ancient weights and measures, though not the same things. For the toise, which is twice the length of the metre, is not the old toise; the foot, which is the third part of the metre, is not the *pied de roi:* but both

are longer measures. The half kilogramme, which is a pound, is not the ancient mark weight pound; nor are the boisseau or litre those of ancient times: they are all respectively near approximations to them.

If the existing system and practice terminated here, it would be far from having attained the ideal perfection of uniformity; but it is believed that, for a multitude of purposes, with this double and complicated system, there is yet a very extensive remnant in use of that which prevailed before the revolution. It appears, from questions at this time in discussion between the governments of the United States and of France, that the tonnage of the French shipping is calculated by admeasurements in cubic royal feet: and it appears hence probable that, in all the business of ship building, and in practical navigation, those measures are still used. Without positive knowledge of the fact, the analogy of all experience warrants the conjecture, that in every part of France, remote from the capital, not only the use of the old legal system, but of the local weights and measures which prevailed in the various cities and districts of the country, is far from being eradicated.

The changes which have forced themselves upon the new system, under the attempt to reduce it to practice, should serve as admonitions to correct the errors of theory; but not operate as discouragement to the pursuit of the principal object, *uniformity*. The French metrology, in the ardent and exclusive search for an universal standard from nature, seems to have viewed the subject too much with reference to the nature of things, and not enough to the nature of man. Its authors do not appear to have considered, in all the bearings of the system, the proportions dictated by nature between the physical organization of man, and the *unit* of his weights and measures. The standard taken from the admeasurement of the earth had no reference to the admeasurement and powers of the human body. The metre is a rod of forty inches: and by applying to it exclusively the principle of decimal divisions, no measure corresponding to the ancient *foot* was provided. An unit of that denomination, though of slightly varied differences of length, was in universal use among all civilized nations: and the want of it is founded in the dimensions of the human body. Perhaps for half the occasions which arise in the life of every individual for the use of a linear measure, the instrument, to suit his purposes, must be portable, and fit to be carried in his pocket. Neither the metre, the half metre, nor the decimetre, are suited to that purpose. The half metre corresponds indeed with the ancient cubit: but perhaps one of the causes which have every where, since the time of the Greeks, substituted the foot in the place of the cubit, has been the superior convenience of the shorter measure. Besides which, the cubit being the unit, the half cubit might serve the purposes of the foot; but the metre, divisible only by two and by ten, gave no measure practically corresponding with the foot whatever. It appears also not to have been considered, that decimal arithmetic, although affording great facilities for the computation

of numbers, is not equally well suited for the divisions of material substances. A glance of the eye is sufficient to divide material substances into successive halves, fourths, eighths, and sixteenths. A slight attention will give thirds, sixths, and twelfths. But divisions of fifth and tenth parts are among the most difficult that can be performed without the aid of calculation. Among all its conveniences, the decimal division has the great disadvantage of being itself divisible only by the numbers two and five. The duodecimal division, divisible by two, three, four, and six, would offer so many advantages over it, that while the French theory was in contemplation, the question was discussed, whether the reformation of weights and measures should not be extended to the system of arithmetic itself, and whether the number twelve should not be substituted for ten, as the term of the periodical return to the unit. Since the establishment of the French system, this idea has been reproduced by philosophical critics, as an objection against it: and Delambre, in the third volume of the Base du Systeme Metrique, p. 302, has considered it, and assigned the reasons for which it had been rejected. He admits, to the full extent, the advantages of a duodecimal over a decimal arithmetic; but alleges the difficulty of effecting the reformation, as the decisive reason against attempting it.

The review of the proceedings in Great Britain and France, relating to the uniformity of weights and measures, presents the general subject under two very different aspects, from the combination of which, it is believed, useful practical results may be derived. Considered as a whole, the established weights and measures of England are but the ruins of a system, the decays of which have been often repaired with materials adapted neither to the proportions, nor to the principles of the original construction. The metrology of France is a new and complicated machine, formed upon principles of mathematical precision, the adaptation of which to the uses for which it was devised is yet problematical, and abiding with questionable success the test of experiment.

The standard of nature of the English system is the length of the human foot, divided by the barley corn. That of the French system is an aliquot part of the circumference of the earth decimally divided.

The material positive standard of the English system is an iron three foot rod in the British exchequer. That of France is a platina metre in the national archives.

To the English system belong two different units of weight, and two corresponding measures of capacity, the natural standard of which is the difference between the specific gravities of wheat and wine. To the French system there is only one unit of weight and one measure of capacity, the natural standard of which is the specific gravity of water.

The French system has the advantage of unity in the weight and the measure, but has no common test of both. Its measure gives the weight only of water. The English system has the inconvenience of two weights and two measures; but each measure is at the same time

a weight. Thus the gallon of wheat and the gallon of wine, though of different dimensions, balance each other as weights. A gallon of wheat and a gallon of wine, each, weigh eight pounds avoirdupois. This observation applies, however, only to the original principle of the English system, and not altogether to its present condition. The difference between the specific gravity of wheat and wine, is still the difference between the troy and avoirdupois weights, but not between the wine and corn gallons. A third vessel of capacity, for which neither the necessity nor the use is perceived, has usurped the place of the corn gallon; and it has been shown how it was introduced. The acts of parliament prescribing the dimensions of the bushel and of the wine gallon in cubic inches, have assumed them from existing standards, or erroneous calculations: and the proportions between the measures of corn and of wine, which belonged originally to the system, are now transferred to those of wine and beer, for which, if the reason was that beer being a home made liquor and wine a foreign production, beer a comfort of the poor, and wine a luxury of the rich, the former ought to be dealt out in larger portions, and more lightly touched with taxation, it proceeded from the best motives of political morality; but which might have been as well accomplished by reducing the tax as by enlarging the measure. As vessels of capacity for fluids, there can be no useful reason for different measure, except the proportion of specific gravities.

In the English system, the smaller of the two weights was originally also identical with the coin: a pound of the weight was a pound sterling in silver money. But this property it has irrecoverably lost.

In the French system, the weight is not a coin; but the metallic coins are weights. Gold, silver, mixed metal, and copper, are all coined in proportions of weight and relative value prescribed by law.

In our monetary system we have discarded the last trace of identity between weights and coins, by ceasing to apply to money the name of pound or penny. Our coins are of prescribed weight and purity, but in no convenient or uniform proportions to each other.

In the English system the two weights are standards of verification to each other; the two pounds being in the proportion to each other of 144 to 175, and the pound avoirdupois being of 7,000 grains troy. For quantities amounting to one fourth of a hundred pounds or more, the English avoirdupois weight requires an accession of 12 per cent.; 28 pounds pass for 25, 56 for 50, and 112 for 100. The original motive for this must have been the convenience of dividing the hundred into halves, quarters, eighths, and sixteenths, without making fractions of a pound. The true hundred can thus be divided into no whole number less than a quarter, or 25.

In the English system, the standard linear measure is connected with the weights by the specific gravity of spring water, of which a measure of one cubic foot contains one thousand ounces avoirdupois.

In the French system, the standard linear measure is connected with the weight and the measure of capacity, by the specific gravity of distilled water, at its greatest density, one cubic decimetre of such

3. In the universal application of the decimal arithmetic, to the multiples and divisions of all weights and measures.

4. In the convenient proportions by which the coins and money of account are adjusted to each other and to the weights.

5. In the uniformity, precision, and significancy, of the nomenclature.

1. If the project of reforming weights and measures had extended, as was proposed by the French system, to the operations of astronomy, geography, and navigation; if the quadrant of the circle and of the sphere had been divided into one hundred degrees, each of one hundred thousand metres; the assumption of that measure would have been an advantage much more important than it is, or can be, in the present condition of the system. Whether it would have compensated for disturbing that uniformity which exists, and which has invariably existed, of the division into ninety degrees, with sexagesimal subdivisions of minutes and seconds, is merely matter of speculation. At least, it has been found impracticable, even in France, to carry it into effect: and, without it, the metre, as the natural standard of the system, has no sensible advantage over the foot. To a perfect system of uniformity for all weights and measures, an aliquot part of the circumference of the earth is not only a better natural standard unit than the pendulum, or the foot, but it is the only one that could be assumed. Every voyage round the earth is an actual mensuration of its circumference. All navigation is admeasurement: and no perfect theory of weights and measures could be devised, combining in it the principle of decimal computation, of which any other natural standard whatever could accomplish the purpose. Its advantages over the pendulum are palpable. The pendulum bears no proportion to the circumference of the earth, and cannot serve as a standard unit for measuring it. Yet a system of weights and measures, which excludes all geography, astronomy, and navigation, from its consideration, must be essentially defective in the principle of uniformity.

But, if the metre and its decimal divisions are not to be applied to those operations of man, for which it is most especially adapted; if those who circumnavigate the globe in fact are to make no use of it, and to have no concern in its proportions; if their measures are still to be the nonagesimal degree, the marine league, the toise, and the foot; it is surely of little consequence to the farmer who needs a measure for his corn, to the mechanic who builds a house, or to the townsman who buys a pound of meat, or a bottle of wine, to know that the weight, or the measure which he employs, was standarded by the circumference of the globe. For all the uses of weights and measures, in their ordinary application to agriculture, traffic, and the mechanic arts, it is perfectly immaterial what the natural standard, to which they are referable, was. The foot of Hercules, the arm of Henry the First, or the barley-corn, are as sufficient for the purpose as the pendulum, or the quadrant of the meridian. The important question to them is, the correspondence of their weight or measure with the positive standard. With the standard of nature,

from which it is taken, they have no concern, unless they can recur to it as a test of verification. However imperfect for this end the human foot, or the kernel of wheat or barley, may be, they are at least easily accessible. It is a great and important defect of the systems which assume the meridian or the pendulum for their natural standard, that they never can be recurred to without scientific operations.

This is one great advantage which a natural standard, taken from the dimensions and proportions of the human body, has over all others. We are perhaps not aware how often every individual, whose concerns in life require the constant use of long measures, makes his own person his natural standard, nor how habitually he recurs to it. But the habits of every individual inure him to the comparison of the definite portion of his person, with the existing standard measures to which he is accustomed. There are few English men or women but could give a yard, foot, or inch measure, from their own arms, hands, or fingers, with great accuracy. But they could not give the metre or decimetre, although they should know their dimensions as well as those of the yard and foot. When the Russian General Suwarrow, in his Discourses under the Trigger, said to his troops, "a soldier's step is an arsheen;" he gave every man in the Russian army the natural standard of the long measure of his country. No Russian soldier could ever afterwards be at a loss for an arsheen. But, although it is precisely twenty-eight English inches, being otherwise divided, a Russian soldier would not, without calculation, be able to tell the length of an English yard or inch.

Should the metre be substituted as the standard of our weights and measures, instead of the foot and inch, the natural standard which every man carries with him in his own person would be taken away; and the inconvenience of the want of it would be so sensibly felt, that it would be as soon as possible adapted to the new measures: every man would find the proportions in his own body corresponding to the metre, decimetre, and centimetre, and habituate himself to them as well as he could. If this conjecture be correct, is it not a reason for adhering to that system which was founded upon those proportions, rather than resort to another, which, after all, will bring us back to the standard of nature in ourselves.

2. The advantage of having a single unit of all weights and a single unit of measures of capacity, is so fascinating to a superficial view, that it would almost seem presumption to raise a question, whether it be so great as at first sight it appears. The relative value of all the articles which are bought and sold by measures of capacity, is a complicated estimate of their specific gravity and of the space which they occupy. If both these properties are ascertained by one instrument for any one article, it cannot be applied with the same effect to another. Thus the litre, in the French system, is a measure for all grains and all liquids: but its capacity gives a weight only for distilled water. As a measure of corn, of wine, or of oil, it gives the space which they occupy, but not their weight. Now, as the weight

of those articles is quite as important in the estimate of their quantities as the space which they fill, a system which has two standard units for measures of capacity, but of which each measure gives the same weight of the respective articles, is quite as uniform as that which, of any given article, requires two instruments to show its quantity; one to measure the space it fills, and another for its weight. It has been observed, that nature, in the relations which she has established between man and the earth upon which he dwells, and in providing for the wants resulting to him from these relations, offers him in his own person two natural standards even of linear measure; one for the range of his own movements upon the earth, and the other for articles loosened from the earth, and which are adapted to the immediate wants of his person. He finds by experience that these may with increased convenience be reduced to one. It is not exactly so with weights or measures of capacity. From the moment when man becomes a tiller of the ground, and civil society is organized; from the moment when the mutual exchange between the wants of one and the superfluities of another commences; measures of capacity and weights are necessary to the operation. The use of metals, as common standards of value, is of later origin, and, when first applied to that purpose, they are always delivered by weight. The first and most important article of traffic is corn, the first necessary of life: wine and oil successively come next: milk and honey follow. For all these, weights and measures of capacity are indispensable. When the metals are first used as common instruments of exchange, the proportions of their qualities are estimated by their weight. But that weight could not be ascertained by itself. The metal being in one scale, there must be something else to balance it in the other: and that other substance, first of all, would, whenever it should have come into use for food, be corn. It might next be wine. But thus compared, it would immediately be seen that the vessel containing of wine a counterpoise to the given metallic weight, would not contain a counterpoise of wheat to the same weight: and what could more naturally suggest itself than the device, to bring to the scales the wheat in a measure to balance the weight, and the wine in a measure to produce the same effect? The metallic weight would then become the common standard for both, but would neither be the same weight by which its own gravity had been ascertained, nor a substitute for it. Thus, the operation of weighing implies in its nature the use of two articles, each of which is the standard testing the gravity of the other. And in the difference between the specific gravities of corn and wine, nature has also dictated two standard measures of capacity, each of them equiponderant to the same weight.

This diversity existing in nature, the troy and avoirdupois weights, and the corn and wine measures of the English system are founded upon it. In England it has existed as long as any recorded existence of man upon the island. But the system did not originate there, neither was Charlemagne the author of it. The weights and measures of Rome and of Greece were founded upon it. The Romans

had the *mina* and the *libra*, the nummulary pound of twelve ounces, and the commercial pound of sixteen. And the Greeks, as well as the Romans, had a weight for small and precious, and a weight for bulky and cheap commodities. The Greeks denominated them by significant terms, *the weight for measure*, and *the weight for money*. Whether the ounce, of which these pounds were composed, was the same, is a subject of much controversy, but of little importance to decide. At the period of the lower empire, these two weights were known by the name of the *eastern* and *western* pound. And the denomination of the former was the same in England: it was the *easterling* pound, and the origin of the term sterling in the English language: it was the pound of the eastern nations, by which Europe was overrun in the decline of the Roman Empire. The avoirdupois pound had the same origin: for it came through the Romans from the Greeks, and through them, in all probability, from Egypt. Of this there is internal evidence in the weights themselves, and in the remarkable coincidence between the cubic foot and the thousand ounces avoirdupois, and between the ounce avoirdupois and the Jewish silver shekel. The Greek foot was, within a fraction of less than the hundredth part of an inch, the same with that of England. The ounce avoirdupois is the same with the Roman and Attic ounce, and the exact double of the Jewish shekel. The Silian plebiscitum, or ordinance of the Roman people, of the year 509, two hundred and fifty years before the Christian era, declares, that a quadrantal of wine shall be eighty pounds, a congius of wine ten pounds; that six sextarii make a congius of wine, forty-eight sextarii a quadrantal of wine; that the sextarius of liquid and dry measures should be the same; and that sixteen pounds make the modius. The congius was the Roman gallon, and the modius the Roman peck. The quadrantal was the same as the amphora, and was formed from the cubic foot of water, so that eighty pounds of wine were equal to a cubic foot of water.

The same combinations are traced with equal certainty to the Greeks and Egyptians: and, if the shekel of Abraham was the same as that of his descendants, the avoirdupois ounce may, like the cubit, have originated before the flood.

This diversity is, therefore, founded in the nature of things; and may be stated by the following rule: that whatever is sold *by* weight, in *measure* must have a measure for itself, which will serve for no other article, of different specific gravity; and as wheat and wine are both articles of that description, as their specific gravities are very materially different, although they are very suitable to be weighed by the same weight, they yet require different measures, to place them in equipoise with that weight. The difference of specific gravity between the vinous and watery fluids is so slight, that neither in the Greek, the Roman, nor the English system, was there any account taken of it. But with regard to oil, it appears that the Greeks had a separate measure adapted to its specific gravity, which they considered as being in proportion to that of wine or water as nine to ten.

Notwithstanding, therefore, the first appearance of superior uniformity and simplicity, presented by the single unit of weights, and single measure of capacity in the new system of France, it appears to be more conformable to the order of nature, and more subservient to the purposes of man, that there should be two scales of weight and two measures of capacity, graduated upon the respective specific gravities of wheat and wine, than with a single weight and a single measure, to be destitute of any indication of weight in the measure.

This conclusion has been confirmed by a very striking fact, which has occurred in France under the new system. By an ordinance of police, approved on the 6th of December, 1808, by the Minister of the Interior, it is prescribed that the sale of oil in Paris by retail shall be *by* weight, in measures, containing five hectogrammes, one double hectogramme, one hectogramme, &c. And these measures, being cylinders of tin, are stamped with initial letters, indicating that one is for sweet oil, and the other for lamp oil. So that here are two new measures of capacity altogether incongruous to the new system, each differing in cubic dimensions from the other, though to measure the single article of oil, and both differing from the litre. They attach themselves indeed to the new system by *weight*, but abandon entirely its pretensions to unity of measure; and fall at once into the principle of the old system, of adapting the measure to the weight.

By the usages of modern times, the weight of wine is of little or no consideration. Its first admeasurement is in casks, of different dimensions in different places, and which cannot be made uniform, unless by a system of metrology common to many nations. It is sold wholesale by the cask or hogshead, the contents of which are ascertained by mechanical gauging instruments, adapted to the smaller measures of capacity of the country where it is to be consumed. These instruments give the solid contents of the vessel, and the number of the standard measures of the country which it contains. The gauging rods used in England and the United States give the contents in cubic inches and wine gallons. As a test of the quantity of wine contained in the cask, this mode of admeasurement is less certain and effectual than weight, especially if the cask is not full: but, being more convenient and easy of application, and specially adapted to the legal measure of the gallon in cubic inches, it has superseded altogether the use of weights as proofs of the quantity of wine. By retail, the article is sold either in the gallon measures fixed by law at 231 cubic inches, or in bottles of no definite measure, but containing an approximation to a quart or pint.

Our system of weights and measures, by the substitution of the wine gallon of 231 for that of 224 cubic inches, has lost the advantage which it originally possessed of testing the accuracy of a wine measure by its weight. The average specific gravity of wine is of 250 grains troy weight to a cubic inch: four inches therefore make a thousand grains, and twenty-eight inches a pint weighing one pound avoirdupois. These coincidences would be of great utility and con-

venience, and would be rendered still more so by another, which is, that this number of 224 inches is the exact decimal part of 2240, the number of pounds avoirdupois that go to a ton. As it now exists, therefore, the measure of the gallon of wine does not show its weight; and the unity of the measure of capacity in the French system, is an advantage not compensated by any benefit derived from the different dimensions of our corn and wine gallons.

Our country is not as yet a land of vineyards. We have no "flowery dales of Sibma, clad with vines." Wine is an article of importation; an article of luxury, in a great measure confined to the consumption of the rich. Its distribution in measure, and the exactness of the measure by which it is distributed, is not an incident which every day comes home to the interests and necessities of every individual. We have less reason for regretting, therefore, the loss of a measure which would prove its integrity by its weight; and more reason for preferring the uniformity of singleness in the French system of capacious measures, to the uniformity of proportion which belonged originally to the English. That proportion itself we have lost by the establishment of a wine gallon of 231, and a corn bushel of 2150 cubic inches: and although it exists in the troy and avoirdupois weights, and in the wine and beer gallons, it exists to none of the useful purposes for which it was originally intended, and to which in former days it was turned.

The consumption of wine in modern times is exceedingly diminished, not only by the substitution of beer, and of spirits distilled from grain in the countries where the vine is not cultivated, but by the use, now become universal, of decoctions from aromatic herbs and berries. Tea and coffee are potations unknown to the European world until within these two centuries: and they have probably diminished by one-half the consumption of wine throughout the world.

The measures, by which solid and liquid substances are sold, are not, and cannot conveniently be the same. The form and the substance of the vessels in which they are kept are altogether different. Grain is usually kept in bags, until ground into meal. Liquids, in large quantities, are kept in wooden vessels of peculiar construction, founded upon the properties of fluids and the laws of hydrostatics: in small quantities, they are kept in vessels of glass, adapted by their form to the facility of pouring them off without loss. Such vessels are utterly unsuitable for containing grain, or any other solid substance. The forms, both of casks and of bottles, are among the most difficult forms into which cubical extension can be moulded for ascertaining quantity by linear measure. They not only contain the problem, hitherto unsolvable to man, of squaring the circle; but some of the most recondite mysteries of the conic sections. They are neither cylinders, nor ellipses, nor cones, nor spheres; but a combination of all these forms. Grain may be measured by a cylindrical or a cubical vessel, at pleasure. The cylindrical form is best adapted to convenience; and by the known proportion of the diameter to the circle, its solid contents in linear measure may be ascertained with

sufficient accuracy and little difficulty. Grain cannot be kept in vessels with large bodies, long necks, and narrow mouths. Liquids can be well kept for preservation in no other. Grain is a swiftly perishable substance, which must generally be consumed within a year from its growth: wines and spirituous liquors in general may be kept many years, and the vessels in which they are kept must be of forms and substances calculated to guard against loss by evaporation, fermentation, or transudation. So different indeed are all the properties of grain and of all liquids, that, instead of requiring the same measure to indicate their qualities, the call of nature is for different vessels, of different substances, and in different forms. The most certain and convenient test for the accuracy of dry measures is linear measure; that of liquids is *weight*. The sextarius of the Roman system, and the litre of the French, were measures common both to wet and dry substances. But in applying it, the Romans formed a liquid measure of ten pounds *weight*, and a dry measure of sixteen. The French litre combines both the tests of linear measure and of weight for the single article of distilled water, at a certain temperature of the atmosphere: but it is not the test of weight for any thing else. The hectolitre of wine or of corn is no indication of the weight of either. The sale of wheat, from the nature of the article, must usually be in large quantity, seldom less than a bushel. The unit of the measure declared in Magna Charta is the quarter of a ton, or eight bushels. Wine is an article the sale of which is as frequent in retail as by wholesale. The accuracy of its admeasurement in small quantities is important. In this respect it has an analogy to the precious metals. In fine, the purchase and sale of liquid and dry substances is, by the constitution of human society, not at the same times, or places, nor by the same persons. Their difference in the origin is that of the vineyard and the cornfield. They pass thence respectively to the wine press and the flour mill; thence to the vintner and the flour merchant, in vessels already adapted to their respective conditions; the corn having undergone a transformation requiring a different measure from that of wheat. Trace them through all their meanderings in the circulation of civil society, till they come to their common ultimate use for the subsistence of man; it will never be found that the same measures are necessary for, or suitable to, them. The wheat comes in the shape of meal or of bread, to be measured by weight; and the liquors in casks or bottles, and still in the form given to them by distillation. The distiller and the brewer, who manufacture the liquid from the grain, have occasion for both measures; but the articles come to them in one form, and go from them in the other; nor is there any apparent necessity that they should receive and issue them by the same measure.

There are conveniences in the intercourse of society, connected with the use of smaller and more minutely perfect weights and measures of capacity, for sales of articles by retail, than by wholesale, and for articles of great price though of small bulk. Thus, drugs, as articles of commerce, and in gross, are sold by the avoirdupois or

commercial pound; used as medicines, in minute quantities, and compounded by the apothecary, they are sold by the smaller or nummulary weight. The laws of Pennsylvania authorize innkeepers to sell beer, *within the house*, by the wine measure; but, for that which they *send out* of the house, require them to use the beer gallon or quart. In both these cases the difference of the measure forms part of the compensation for the labor and skill of the apothecary, and part of the profits necessary to support the establishment of the publican. There is, finally, an important advantage in the establishment of two units of weights and of measures of capacity, by the possession in each of a standard for the verification of the other. It serves as a guard against the loss or destruction of the positive standard of either. The troy and avoirdupois pounds are to each other as 5,760 to 7,000. Should either of these standard pounds be lost, the other would supply the means of *restoring* it. The same thing might be effected by the measures of beer and of wine. The French system has designated the *pendulum* as such a standard for the verification of the metre. The English system gives, in each weight and measure, a standard for the other.

The result of these reflections is, that the uniformity of nature for ascertaining the quantities of all substances, both by gravity and by occupied space, is a uniformity of proportion, and not of identity; that, instead of one weight and one measure, it requires two units of each, *proportioned* to each other; and that the original English system of metrology, possessing two such weights, and two such measures, is better adapted to the only uniformity applicable to the subject, recognized by nature, than the new French system, which, possessing only one weight and one measure of capacity, identifies weight and measure only for the single article of distilled water; the English uniformity being relative to the *things* weighed and measured, and the French only to the instruments used for weight and mensuration.

3. The advantages of the English system might, however, be with ease adapted to that of France, but for the exclusive application in the latter of the decimal arithmetic to all its multiples and subdivisions. The decimal numbers, applied to the French weights and measures, form one of its highest theoretic excellencies. It has, however, been proved by the most decisive experience in France, that they are not adequate to the wants of man in society: and, for all the purposes of retail trade, they have been formally abandoned. The convenience of decimal arithmetic is in its nature merely a convenience of calculation: it belongs essentially to the keeping of accounts; but is merely an incident to the transactions of trade. It is applied, therefore, with unquestionable advantage, to moneys of account, as we have done: yet, even in our application of it to the *coins*, we have not only found it inadequate, but in some respects inconvenient. The divisions of the Spanish dollar, as a coin, are not only into tenths, but into halves, quarters, fifths, eighths, sixteenths, and twentieths. We have the halves, quarters, and twentieths, and might have the fifths; but the eighth makes a fraction of the cent, and the sixteenth

even a fraction of a mill. These eighths and sixteenths form a very considerable proportion of our metallic currency: and although the eighth dividing the cent only into halves adapts itself without inconvenience to the system, the fraction of the sixteenth is not so tractable; and in its circulation, as small change, it passes for six cents, though its value is six and a quarter, and there is a loss by its circulation of four per cent, between the buyer and the seller. For all the transactions of retail trade, the eighth and sixteenth of a dollar are among the most useful and convenient of our coins: and, although we have never coined them ourselves, we should have felt the want of them, if they had not been supplied to us from the coinage of Spain.

This illustration, from our own experience, of the modification with which decimal arithmetic is adaptable even to money, its most intimate and congenial natural relative, will disclose to our view the causes which limit the exclusive application of decimal arithmetic to *numbers*, and admit only a partial and qualified application of them to weight or measure.

It has already been remarked, that the only apparent advantage of substituting an aliquot part of the circumference of the earth, instead of a definite portion of the human body, for the natural unit of linear measure, is, that it forms a basis for a system embracing *all* the objects of human mensuration; and that its usefulness depends upon its application to geography and astronomy, and particularly to the division of the quadrant of the meridian into centesimal degrees. In the novelty of the system, this was attempted in France, as well as the decimal divisions of time, and of the rhumbs of the wind. A French navigator, suffering practically under the attempt thus to navigate, decimally, the ocean, recommended to the national assembly to decree, that the earth should perform four hundred revolutions in a year. The application of decimal divisions to time, the circle, and the sphere, are abandoned even in France. And for all the ordinary purposes of mensuration, excepting itinerary measure, the metre is too long for a standard unit of nature. It was a unit most especially inconvenient as a substitute for the foot, a measure to which, with trifling variations of length, all the European nations and their descendants were accustomed. The foot rule has a property very important to all the mechanical professions, which have constant occasion for its use: it is light, and easily portable about the person. The metre, very suitable for a staff, or for measuring any portion of the earth, has not the property of being portable about the person: and, for all the professions concerned in ship or house building, and for all who have occasion to use mathematical instruments, it is quite unsuitable. It serves perfectly well as a substitute for the yard or ell, the fathom or perch; but not for the *foot*. This inconvenience, great in itself, is made irreparable when combined with the exclusive principle of decimal divisions. The union of the metre, and of decimal arithmetic, rejected all compromise with the foot. There was no legitimate extension of matter intermediate between the ell and

the palm, between forty inches and four. This decimal despotism was found too arbitrary for endurance; not only the foot, but its duodecimal divisions, were found to be no arbitrary or capricious institutions, but founded in the nature of the relations between man and things. The duodecimal division gives equal aliquot parts of the unit, of two, three, four, and six. By giving the third and the fourth, it indirectly gives the eighth and sixteenth, and gives facility for ascertaining the ninth, or third of the third. Decimal division, in giving the half, does not even give the quarter, but by multiplication of the subdivisions. It is incommensurable with the *third*, which unfortunately happened to be the foot, the universal standard unit of the old metrology. The choice of the kilogramme, or cubical decimetre of distilled water, as the single standard unit of weights, with the application to it of the decimal divisions, was followed by similar inconveniences. The pound weight should be a specific gravity easily portable about the person, not only for the convenience of using it as an instrument, but as the measure of quantities to be carried. To the common mass of the people, the use of weights is in the market, or the shop. The article weighed is to be carried home. It is an article of food for the daily subsistence of the individual or his family. As he has not the means of purchasing it in large quantities, it must often be sold in quantities represented by the pound weight, which, like the foot rule, with various modifications, is universally used throughout the European world. Subdivisions of that weight, the half, the quarter of a pound, are often necessary to conciliate the wants and the means of the neediest portion of the people; that portion to whom the *justice* of weight and measure is a necessary of life, and to whom it is one of the most sacred duties of the legislator to secure that justice, so far as it can be secured by the operation of human institutions. The half of the kilogramme was nearly equivalent to the ancient Paris pound. But there was in the new system no half, or quarter of a pound; because there was no quarter or eighth of a kilogramme. There was no intermediate weight between the pound, or half kilogramme, and the hectogramme, which was a fifth part of a pound.

The *litre*, or unit of measures of capacity in the new system, had one great advantage over the linear and weight units, by its near equivalence to the old Paris pint, of which it was to take the place. But, on the other hand, decimal divisions are still more inapplicable to measures of capacity for liquids, than to linear measures or weights. The substance in nature best suited for a retail measure of liquids, is tin: and the best form, in which the measure can be moulded, is a slight approach from the cylinder to the cone. Our quart and gallon wine and beer measures are accordingly of that form, as are all the most ordinary vessels used for drinking. In the new French system, the form of all the measures of capacity is cylindrical; and the litre is a measure, the diameter of which is half its depth. It is, therefore, easily divisible into halves, quarters, and eighths; for it needs only thus to divide the depth, retaining the same

diameter. But all conveniences of proportion are lost, by taking one-tenth of the depth and retaining the same diameter: and, if the diameter be reduced, there is no means, other than complicated calculation, squarings of the circle, and extractions of cube roots, that will give one liquid measure which shall be the tenth part of another.

In the promiscuous use of the old weights and measures and the new, which was unavoidable in the transition from the one to the other, the approximation to each other of the quarter and the fifth parts of the unit became a frequent source of the most pernicious frauds; frauds upon the scanty pittance of the poor. The small dealers in groceries and liquors, and marketmen, gave the people the fifth of a kilogramme for a half pound, and the fifth of the litre for a half setier. The most easy and natural divisions of liquids are in continual halvings: and the Paris pint was thus divided into halves, quarters, eighths, sixteenths, and thirty-second parts, by the name of chopines, half setiers, possons, half possons, and roquilles. The half setier, just equivalent to our half pint, was the measure in most common use for supplying the daily necessities of the poor; and thus the decimal divisions of the law became snares to the honesty of the seller, and cheats upon the wants of the buyer.

Thus then it has been proved, by the test of experience, that the principle of decimal divisions can be applied only with many qualifications to any general system of metrology; that its natural application is only to numbers; and that time, space, gravity, and extension, inflexibly reject its sway. The new metrology of France, after trying it in its most universal theoretical application, has been compelled to renounce it for all the measures of astronomy, geography, navigation, time, the circle, and the sphere; to modify it even for superficial and cubical linear measure, and to compound with vulgar fractions, in the most ordinary and daily uses of all its weights and all its measures. It has restored the foot, the pound, and the pint, with all their old subdivisions, though not exactly with their old dimensions. The foot, with its duodecimal divisions into thumbs and lines, returns in the form the most irreconcileable possible, with the decimals of the metre; for it comes in the proportion of three to ten, and consists of 333⅓ millimetres. This indulgence to linear measure is without qualification, and may be used in all commerce, whether of wholesale or retail. The restoration of the pound, the boisseau,* and the pint, is limited to retail trade. The fractions of the pound are as averse to decimal combinations as those of the foot. The eighth of a pound, for instance, is 625 decigrammes, each of about 1½

* One of the most abundant sources of error and confusion, in relation to weights and measures, arises from mistranslation of those of one country into the language of another. Thus, to call the *pinte* of Paris, a pint, is to give an incorrect idea of its contents. The Paris pinte corresponded with our wine quart, containing 46.95 French, or 58.08 English cubic inches. To call the boisseau a *bushel*, is a still greater incongruity between the word and the idea connected with it. The *boisseau* contained 655 French cubic inches, and was less than 1½ peck English. The minot, or three boisseaus, was the measure corresponding with the English bushel.

grain troy weight. The half of this eighth is an *ounce*, to form which decimally requires a recourse to another fractional stage, and to say 31.25 *milli*grammes. But the milligramme, being equivalent to less than $\frac{1}{8}$ of a grain troy weight, is too minute for accurate application; so that it is called, and marked upon the weight itself as 31.3decigrammes. The half ounce, instead of 15.625 decimilligrammes, is marked for 15.6 decigrammes. The quarter of an ounce, instead of 7.8125, passes for 7.8 decigrammes, and the gros, or groat, instead of 3.90625, is abridged to 3.9. The ounce and all the smaller weights, therefore, reject the coalition of subdivision by decimal and vulgar fractions: and the weights for account are different from the weights for trade.

From the verdict of experience, therefore, it is doubtful whether the advantage to be obtained by any attempt to apply decimal arithmetic to weights and measures, would ever compensate for the increase of diversity which is the unavoidable consequence of change. Decimal arithmetic is a contrivance of man for computing numbers; and not a property of time, space, or matter. Nature has no partialities for the number ten: and the attempt to shackle her freedom with them, will for ever prove abortive.

The imperial decree of March, 1812, by the reservation of a purpose to revise the whole system of the new metrology, after a further interval of ten years of experience, seems to indicate a doubt, whether the system itself can be maintained. Ten years from 1812, was a period far beyond that which Providence had allotted to the continuance of the imperial government itself. The royal government of France, which has since succeeded, has hitherto made no change in the system. Whether, at the expiration of the ten years, limited in the decree, the proposed revisal of it will be accomplished by the present government, is not ascertained. In the mean time, the whole system must be considered as an experiment upon trial even in France: and should it ultimately prove, by its fruits, worthy of the adoption of other nations, it will at least be expedient to postpone engrafting the scion, until the character of the tree shall have been tested, in its native soil, by its fruits.

4. The fourth advantage of the French metrology over that which we possess, consists in the convenient proportions, by which the coins and moneys of account are adjusted to each other, and to the weights.

This is believed to be a great and solid advantage; not possessed exclusively by the French system, for it was, in high perfection, a part of the original English system of weights and measures, as has already been shown. It was more perfect in that system, because the silver coins and weights were not merely proportioned to each other, but the *same*. This is not the case with the French coins: and even their *proportions* to the weights are disturbed and unhinged by the mint allowance, or what they call toleration of inaccuracy, both of weight and alloy. This toleration, which is also technically called the *remedy*, ought every where to be exploded. It is in no case

necessary. The toleration is injustice: the remedy is disease. If it were the duty of this report to present a system of weights, measures, and coins, all referable to a single standard, combining with it, as far as possible, the decimal arithmetic, and of which uniformity should be the pervading principle, without regard to existing usages, it would propose a silver coin of nine parts pure and one of alloy: of thickness equal to one-tenth part of its diameter; the diameter to be one-tenth part of a foot, and the foot one-fourth part of the French metre. This dollar should be the unit of weights as well as of coins and of accounts; and all its divisions and multiples should be decimal. The unit of measures of capacity should be a vessel containing the weight of ten dollars of distilled water, at the temperature of ten degrees of the centigrade thermometer: and the cubical dimensions of this vessel should be ascertained by the weight of its contents; the decimal arithmetic should apply to its weight, and convenient vulgar fractions to its cubical measure. This system once established, the standard weight and purity of the coin should be made an article of the constitution, and declared unalterable by the legislature. The advantage of such a system would be to embrace and establish a principle of uniformity with reference to time, which the French metrology does not possess. The weight would be a perpetual guard upon the purity and value of the coin. No second weight would be necessary or desirable. The coin and the weight would be mutual standards for each other; accessible, at all times, to every individual. Should the effect of such a system only be, as its tendency certainly would be, to deprive the legislative authority of the power to debase the coins, it would cut up by the roots one of the most pernicious practices that ever afflicted man in civil society. By its connection of the linear standard with the French metre, it would possess all the advantages of having that for a unit of its measures of length, and a link of the most useful uniformity with the whole French metrology.

But the consideration of the coins is beyond the scope of the resolutions of the two Houses; nor is their relation to the weights and measures of the country viewed, by the constitution and laws of the United States, as that of parts of one entire system. Excepting the application of decimal divisions to our money of account, and the establishment of the dollar as the unit both of the money of account and of the silver coins, our moneys have no uniform or convenient adjustment to our weights. The proportion of alloy is not the same in our coins of silver, as in those of gold: and the only connection between our monetary system and our weights and measures is, that the gravity and proportional purity of the coins is prescribed in troy weight grains. To obtain, therefore, the advantage existing in the French metrology, of easy proportions between the weights and coins, or the still greater advantage of identity between them which belonged to the old English system, an entire change would be necessary in the fabrication of our coins, and in our moneys of account.

It is, at least, extremely doubtful whether the benefits to be derived from such a change would be equivalent to the difficulties of achieving it, and the hazard of failing in the attempt.

5. *The last* superior advantage of the French metrology is, the *uniformity*, precision, and significancy, of its nomenclature.

In mere speculative theory, so great and unequivocal is this advantage, that it would furnish one of the most powerful arguments for adopting the whole system to which it belongs. In every system of weights and measures, ancient or modern, with which we are acquainted, until the new system of France, the poverty and imperfection of language has entangled the subject in a snarl of inextricable confusion. The original *names* of all the units of weights and measures have been improper applications of the substances from which they were derived. Thus, the foot, the palm, the span, the digit, the thumb, and the nail, have been, as measures, improperly so called, for the several parts of the human body, with the length of which they corresponded. Instead of a specific name, the measure usurped that of the standard from which it was taken. Had the foot rule been unalterable, the inconvenience of its improper appellation might have been slight. But, in the lapse of ages, and the revolutions of empires, the foot measure has been every where retained, but infinitely varied in its extent. Every nation of modern Europe has a foot measure, no two of which are the same. The English foot indeed was adopted and established in Russia by Peter the Great; but the original Russian foot was not the same. The Hebrew shekel and maneh, the Greek mina, and the Roman pondo, were *weights*. The general name *weight* improperly applied to the specific unit of weight. The Latin word libra, still more improperly, was borrowed from the balance in which it was employed: libra was the balance, and at the same time the pound weight. The terms *weight* and *balance* were thus generic terms, without specific meaning. They signified any weight in the balance, and varied according to the varying gravities of the specific standard unit at different times and in different countries. When, by the debasement of the coins they ceased to be identical with the weights, they still retained their names. The *pound* sterling retains its name three centuries after it has ceased to exist as a weight, and after having, as money, lost more than two thirds of its substance. We have discarded it indeed from our vocabulary; but it is still the unit of moneys of account in England. The *livre* tournois of France, after still greater degeneracy, continued until the late revolution, and has only been laid aside for the new system. The ounce, the drachm, and the grain, are specific names, indefinitely applied as indefinite parts of an indefinite whole. The English pound avoirdupois is heavier than the pound troy; but the ounce avoirdupois is lighter than the ounce troy. The weights and measures of all the old systems present the perpetual paradox of a whole not equal to all its parts. Even numbers lose the definite character which is essential to their nature. A dozen become sixteen, twenty-eight signify twenty-five, one hundred and twelve mean a hundred.

The indiscriminate application of the same generic term to different specific things, and the misapplication of one specific term to another specific thing, universally pervade all the old systems, and are the inexhaustible fountains of diversity, confusion, and fraud. In the vocabulary of the French system, there is one specific, definite, significant word, to denote the unit of lineal measure; one for superficial, and one for solid measure; one for the unit of measures of capacity, and one for the unit of weights. The word is exclusively appropriated to the thing, and the thing to the word. The metre is a definite measure of length: it is nothing else. It cannot be a measure of one length in one country, and of another length in another. The gramme is a specific weight, and the litre a vessel of specific cubic contents, containing a specific weight of water. The multiples of these units are denoted by prefixing to them syllables derived from the Greek language, significant of their increase in decimal proportions. Thus, ten metres form a deca-metre; ten grammes, a deca-gramme; ten litres, a deca litre. The subdivisions, or decimal fractions of the unit, are equally significant in their denominations, the prefixed syllables being derived from the Latin language. The deci-metre is a tenth part of a metre; the deci-gramme, the tenth part of a gramme; the deci-litre, the tenth part of a litre. Thus, in continued multiplication, the hecto-metre is a hundred, the kilo-metre a thousand, and the myria-metre ten thousand metres; while, in continued division, the centi-metre is the hundredth, and the milli-metre the thousandth part of the metre. The same prefixed syllables apply equally to the multiples and divisions of the weight, and of all the other measures. Four of the prefixes for multiplication, and three for division, are all that the system requires. These twelve words, with the *franc*, the *decime*, and the *centime*, of the coins, contain the whole system of French metrology, and a complete language of weights, measures, and money.

But where is the steam engine of moral power to stem the stubborn tide of prejudice, and the headlong current of inveterate usage? The cheerful, ready, and immediate adoption, by the mass of the nation, of these twelve words, would have secured the triumph of the new system of France. The unutterable confusions of signifying the same thing by different words, and different things by the same word, would have ceased. The *setier* would no longer have been a common representative for twelve boisseaus of corn, for fourteen of oats, for sixteen of salt, and for thirty-two of coal, and for eight pints of wine. The pound would no longer have been of ten, of twelve, of fourteen, of sixteen, and of eighteen ounces, in different parts of the same country. The weights and the measures would have been both perfect and just: and the blessing of uniformity enjoyed by France would have been the most effective recommendation of her system to all the rest of mankind. It is mortifying to the philanthropy, which yearns for the improvement of the condition of man, to know that this is precisely the part of the system which it has been found impracticable to carry through.

The modern language of all the mathematical and physical sciences is derived from the Greek and Latin; with a partial exception of some terms which are of Arabic origin. Geography, chemistry, the pure mathematics, botany, mineralogy, zoology, in all of which great discoveries have been made within the last three centuries, have borrowed from those primitive languages almost invariably the words by which those discoveries have been expressed. They are the languages in which all that was heretofore known of art or science was contained: nor are the moral and political sciences less indebted to them for numerous additions to their vocabularies which the progress of modern improvements has required. But there is a natural aversion in the mass of mankind to the adoption of words, to which their lips and ears are not from their infancy accustomed. Hence it is that the use of all technical language is excluded from social conversation, and from all literary composition suited to general reading; from poetry, from oratory, from all the regions of imagination and taste in the world of the human mind. The student of science, in his cabinet, easily familiarizes to his memory, and adopts without repugnance, words indicative of new discoveries or inventions, analogous to the words in the same science already stored in his memory. The artist, at his work, finds no difficulty to receive or use the words appropriate to his own profession. But the general mass of mankind, of every condition, reluct at the use of unaccustomed sounds, and shrink especially from new words of many syllables. But weights and measures are instruments indispensable, not only to the philosophical student and the professional artist; they are the want of every individual and of every day. They are the want of food, of raiment, of shelter, of all the labors and all the pleasures of social existence. Weights and measures, like all the common necessaries of life, have, in all the countries of modern Europe, customary names of one, or, at most, of two, syllables. The units of the new French system have no more; but their multiples and subdivisions have four or five; and, although compounded of syllables familiar to those who had any acquaintance with the classical languages of Greece and Rome, they had a strange and outlandish sound to the ears of the people in general, who would never be taught to pronounce them. Hence, after an experience of several years, it was found necessary, not only to give back to the people the vulgar fractions of their measures, which had been taken from them, but all their indefinite and many-meaning words of pound and ounce, foot, aune and thumb, boisseau and pint. Since which time there have been, besides all the relics of the old metrology, two concurrent systems of weights and measures in France; one, the proper legal system, with decimal divisions and multiplications, and the new, precise, and significant nomenclature; and the other a system of sufferance, with the same instruments, but divided in all the old varieties of vulgar fractions, and with the old improper vocabulary, made still more so by its adaptation to new and different things.

Perhaps it may be found, by more protracted and multiplied experience, that this is the only uniformity attainable by a system of weights and measures for universal use: that the same material instruments shall be divisible decimally for calculations and accounts; but in any other manner suited to convenience in the shops and markets; that their appropriate legal denominations shall be used for computation, and the trivial names for actual weight, or mensuration.

It results, however, from this review of the present condition of the French system in its native country, and from the comparison of its theoretical advantages over that which we already possess, that the time has not arrived at which so great and hazardous an experiment can be recommended, as that of discarding all our established existing weights and measures, to adopt and legalize those of France in their stead. The single standard, proportional to the circumference of the earth; the singleness of the units for all the various modes of mensuration; the universal application to them of decimal arithmetic; the unbroken chain of connection between all weights, measures, moneys, and coins; and the precise, significant, short, and complete vocabulary of their denominations; altogether forming a system adapted equally to the use of all mankind; afford such a combination of the principle of uniformity for all the most important operations of the intercourse of human society; the establishment of such a system so obviously tends to that great result, the improvement of the physical, moral, and intellectual, condition of man upon earth; that there can be neither doubt nor hesitation in the opinion, that the ultimate adoption, and universal though modified application of that system, is a consummation devoutly to be wished.

To despair of human improvement is not more congenial to the judgment of sound philosophy than to the temper of brotherly kindness. Uniformity of weights and measures is, and has been for ages, the common, earnest, and anxious pursuit of France, of Great Britain, and, since their independent existence, of the United States. To the attainment of one object, common to them all, they have been proceeding by different means, and with different ultimate ends. France alone has proposed a plan suitable to the ends of all; and has invited co-operation for its construction and establishment. The associated pursuit of great objects of common interest is among the most powerful modern expedients for the improvement of man. The principle is at this time in full operation, for the abolition of the African slave-trade. What reason can be assigned, why other objects, of common interest to the whole species, should not be in like manner made the subject of common deliberation and concerted effort? To promote the intercourse of nations with each other, the uniformity of their weights and measures is among the most efficacious agencies: and this uniformity can be effected only by mutual understanding and united energy. A single and universal system can be finally established only by a general convention, to which the principal nations of the world shall be parties, and to which they shall all give their assent. To effect this, would seem to be no difficult achieve-

ment. It has one advantage over every plan of moral or political improvement, not excepting the abolition of the slave-trade itself: there neither is, nor can be, any great counteracting *interest* to overcome. The conquest to be obtained is merely over prejudices, usages, and perhaps national jealousies. The whole evil to be subdued is diversity of opinion with regard to the means of attaining the same end. To the formation of the French system, the learning and the genius of other nations did co-operate with those of her native sons. The co-operation of Great Britain was invited; and there is no doubt that of the United States would have been accepted, had it been offered. The French system embraces all the great and important principles of uniformity, which can be applied to weights and measures: but that system is not yet complete. It is susceptible of many modifications and improvements. Considered merely as a labor-saving machine, it is a new power, offered to man, incomparably greater than that which he has acquired by the new agency which he has given to steam. It is in design the greatest *invention* of human ingenuity since that of printing. But, like that, and every other useful and complicated invention, it could not be struck out perfect at a heat. Time and experience have already dictated many improvements of its mechanism; and others may, and undoubtedly will, be found necessary for it hereafter. But all the radical principles of uniformity are in the machine: and the more universally it shall be adopted, the more certain will it be of attaining all the perfection which is within the reach of human power.

Another motive, which would seem to facilitate this concert of nations, is, that it conceals no lurking danger to the independence of any of them. It needs no convocation of sovereigns, armed with military power. It opens no avenue to partial combinations and intrigues. It can mask, under the vizor of virtue, no project of avarice or ambition. It can disguise no private or perverted ends, under the varnish of generous and benevolent aims. It has no final appeal to physical force; no *ultima ratio* of cannon balls. Its objects are not only pacific in their nature, but can be pursued by no other than peaceable means. Would it not be strange, if, while mankind find it so easy to attain uniformity in the use of every engine adapted to their mutual destruction, they should find it impracticable to agree upon the few and simple but indispensable instruments of all their intercourse of peace and friendship and beneficence—that they should use the same artillery and musketry, and bayonets and swords and lances, for the wholesale trade of human slaughter, and that they should refuse to weigh by the same pound, to measure by the same rule, to drink from the same cup, to use in fine the same materials for ministering to the wants and contributing to the enjoyments of one another?

These views are presented as leading to the conclusion, that, as final and universal uniformity of weights and measures is the common desideratum for all civilized nations; as France has formed, and for her own use has established, a system, adapted, by the high-

est efforts of human science, ingenuity, and skill, to the common purposes of all; as this system is yet new, imperfect, susceptible of great improvements, and struggling for existence even in the country which gave it birth; as its universal establishment would be a universal blessing; and as, if ever effected, it can only be by consent, and not by force, in which the energies of opinion must precede those of legislation; it would be worthy of the dignity of the Congress of the United States to consult the opinions of all the civilized nations with whom they have a friendly intercourse; to ascertain, with the utmost attainable accuracy, the existing state of their respective weights and measures; to take up and pursue, with steady, persevering, but always temperate and discreet exertions, the idea conceived, and thus far executed, by France, and to co-operate with her to the final and universal establishment of her system.

But, although it is respectfully proposed that Congress should immediately sanction this consultation, and that it should commence, in the first instance, with Great Britain and France, it is not expected that it will be attended with immediate success. Ardent as the pursuit of uniformity has been for ages in England, the idea of extending it beyond the British dominions has hitherto received but little countenance there. The operation of changes of opinion there is slow; the aversion to all innovations, deep. More than two hundred years had elapsed from the Gregorian reformation of the calendar, before it was adopted in England. It is to this day still rejected throughout the Russian empire. It is not even intended to propose the adoption by ourselves of the French metrology for the present. The reasons have been given for believing, that the time is not yet matured for this reformation. Much less is it supposed adviseable to propose its adoption to any other nation. But, in consulting them, it will be proper to let them understand, that the design and motive of opening the communication is, to promote the final establishment of a system of weights and measures, to be common to all civilized nations.

In contemplating so great, but so beneficial a change, as the ultimate object of the proposal now submitted to the consideration of Congress, it is supposed to be most congenial to the end, to attempt no present change whatever in our existing weights and measures; to let the standards remain precisely as they are; and to confine the proceedings of Congress at this time to authorizing the Executive to open these communications with the European nations where we have accredited ministers and agents, and to such declaratory enactments and regulations as may secure a more perfect uniformity in the weights and measures now in use throughout the Union.

The motives for entertaining the opinion, that any change in our system at the present time would be inexpedient, are four:

First, That no change whatever of the system could be adopted, without losing the greatest of all the elements of uniformity, that referring to the persons using the same system. This uniformity we now possess, in common with the whole British nation; the na-

tion with which, of all the nations of the earth, we have the most of that intercourse which requires the constant use of weights and measures. No change is believed possible, other than that of the whole system, the benefit of which would compensate for the loss of this uniformity.

Secondly, That the system, as it exists, has an uniformity of proportion very convenient and useful, which any alteration of it would disturb, and perhaps destroy; the proportion between the avoirdupois and troy weights, and that between the avoirdupois weight and the foot measure; one cubic foot containing of spring water exactly one thousand ounces avoirdupois, and one pound avoirdupois consisting of exactly seven thousand grains troy.

Thirdly, That the experience of France has proved, that binary, ternary, duodecimal, and sexagesimal divisions, are as necessary to the practical use of weights and measures, as the decimal divisions are convenient for calculations resulting from them; and that no plan for introducing the latter can dispense with the continued use of the former.

Fourthly, That the only *material* improvement, of which the present system is believed to be susceptible, would be the restoration of identity between weights and silver coins; a change, the advantages of which would be very great, but which could not be effected without a corresponding and almost total change in our coinage and moneys of account; a change the more exceptionable, as our monetary system is itself a new, and has hitherto been a successful institution.

Of all the nations of European origin, ours is that which least requires any change in the system of their weights and measures. With the exception of Louisiana, the established system is, and always has been, throughout the Union, the same. Under the feudal system of Europe, combined with the hierarchy of the church of Rome, the people were in servitude, and every chieftain of a village, or owner of a castle, possessed or asserted the attributes of sovereign power. Among the rest, the feudal lords were in the practice of coining money, and fixing their own weights and measures. This is the great source of numberless diversities existing in every part of Europe, proceeding not from the varieties which in a course of ages befell the same system, but from those of diversity of origin. The nations of Europe are, in their origin, all compositions of victorious and vanquished people. Their institutions are compositions of military power and religious opinions. Their doctrines are, that freedom is the grant of the sovereign to the people, and that the sovereign is amenable only to God. These doctrines are not congenial to nations originating in colonial establishments. Colonies carry with them the general laws, opinions, and usages, of the nation from which they emanate, and the prejudices and passions of the age of their emigration. The North American colonies had nothing military in their origin. The first English colonies on this continent were speculations of commerce: they commenced precisely at the period of that struggle in England between liberty and power, which,

after long and bloody civil wars, terminated in a compromise between the two conflicting principles. The colonies were founded by that portion of the people, who were arrayed on the side of liberty. They brought with them all the rights, but none of the servitudes, of the parent country. Their constitutions were, indeed, conformably to the spirit of the feudal policy, charters granted by the crown; but they were all adherents to the doctrine, that charters were not donations, but compacts. They brought with them the weights and measures of the law, and not those of any particular district or franchise. The only change which has taken place in England with regard to the legal standards of weights and measures, since the first settlement of the North American colonies, has been the specification of the contents of measures of capacity, by prescribing their dimensions in cubical inches. All the standards at the exchequer are the same that they were at the first settlement of Jamestown; with the exception of the wine gallon, which is of the time of queen Anne: and the standards of the exchequer are the prototypes from which all the weights and measures of the Union are derived.

A particular statement of the regulations of the several states relative to weights and measures, is subjoined to this report, in the appendix.

The first settlement of the English colonies on the continent of North America was undertaken towards the close of the reign of queen Elizabeth, in honor of whom it received the name of Virginia.

During the same reign of Elizabeth, and cotemporaneous with the adventures which preceded the settlement of Jamestown, the act of parliament of 1592 passed, defining in feet the statute mile. This mile, together with its elementary units, the foot and inch, were the measures by which all the territories, granted by the successors of Elizabeth, in this hemisphere, were defined. The foot and inch, from usage immemorial in England, and by a statute then of more than three centuries' antiquity, had been the elements of superficial, as well as of itinerary land measure. These, therefore, were not only the most natural measures for the use of the English colonies; they were inwoven in their primitive constitutions, and were brought with their charters, an essential part of their possessions.

Among the earliest traces of colonial legislation in Virginia and in New England, we find acts declaring the assize of London, and the standards of the exchequer, to be the only lawful prototypes of the weights and measures of the colonies. The foot and inch were of dimensions perfectly well ascertained: and in the year 1601, only seven years before the settlement at Jamestown, and less than twenty before that of Plymouth, new standards, not only of the yard and ell, but of the avoirdupois and troy weights, and of the bushel, corn gallon, quart, and pint, had been deposited at the exchequer. There was neither uncertainty, nor perceptible diversity, with regard to the long measures or the weights; but the standard vessels of capacity were of various dimensions. The bushel of 1601 contained 2,124 cubic inches: it was therefore a copy from an older standard,

made in exact conformity to the rule prescribed in the statute of 1266, and very probably the identical standard therein described. It contained eight corn gallons of wheat, equiponderant to eight Irish gallons of Gascoign wine; of wheat, thirty-two kernels of which were of equal weight with the round, unclipped penny sterling of 1266. Its corresponding wine gallon, therefore, would have been the Irish gallon of 217.6 cubic inches; and its corresponding corn gallon of 265.5 inches, an intermediate between the Rumford quart and gallon of 1228, and differing less than one inch from either of them. There were two other standard bushels at the exchequer, of the same dimensions; one of the age of Henry the Seventh, and one dated 1091. This has been supposed to be a mistake for 1591 or 1601. But as it is not probable that two standard bushels should have been deposited in the exchequer at the same time, or even at dates so near to each other, a conjecture may be indulged, that the 1091 marks the date, when the standard measure, described in the statute of 1266 was made. Of that standard, these three bushels were unquestionably copies.

The corn and the ale gallons of 1601 were of 272 cubic inches; and there was one of Henry the Seventh there, of the same size, as reported by the artist who measured them for the commissioners of the excise in 1688. When measured again by order of the committee of the House of Commons, in 1758, they were reported to contain each about one inch less. The true size intended for all of them was 272; and they were made by an application of the rule of 1266 to the troy weight wheat of the act of 1496. They were the eighth parts of a bushel of 2,176 inches; and their corresponding wine gallon was the Guildhall gallon of 224 inches.

There were, in 1601, a standard quart of 70 inches, and a pint of 34.8; which were evidently intended to be in exact proportions to each other: and the gallon, to which they referred, was the gallon of 282 inches. This would have made a bushel of 2,256 inches; and its corresponding wine gallon is of 231 inches. The standards, thus made, were by an application both of the wheat and of the rule described in the statute of 1266 to the troy weight gallon of 1496; that is, the wheat was of the kind, 32 kernels of which weighed the same as the old penny sterling, and of which the wine gallon contained eight pounds troy weight. There was a standard bushel of Henry the Seventh at the exchequer, of 2,224 inches, probably the bushel from which this quart and these pints were deduced.

There was also the *Winchester* bushel of 2,145.6 cubic inches, made in the reign of Henry the Seventh, but from its name evidently copied from a standard which had been kept at Winchester when that place was the capital of the kingdom. This bushel had been made, by combining the rule of 1266 with the assize of casks which, in the statute of 1423, is declared to be of *old time*, by which the hogshead, or eight cubic feet of Gascoign wine, consisted of 63 gallons. That hogshead was a quarter of a ton of wine, as eight Winchester bushels contained a quarter of a ton of wheat. The gallon was of 219¼ cubic

mches; and the corresponding ale gallon was of 268.2 inches. There was at the exchequer no wine or ale gallon of those dimensions; because the wine gallon of 224 inches, and the corn gallon of 272, made under the statutes of 1496 and 1531, had been substituted in their stead. At the exchequer, there was indeed no wine gallon at all. Those of older date than the act of 1496 had disappeared, and the gallon of 224 inches made according to that act, had been delivered out of the exchequer to the city of London, and was at Guildhall.

Such was the state of the standards in London, at the time of the first colonial emigrations to this continent.

MASSACHUSETTS.

Among the colony laws of Massachusetts, there is an act of the year 1647, directing the country treasurer *to provide*, at the country's charge, weights and measures *of all sorts* for continual standards. In the specification which ensues in the act, all the measures, of which there were standards at the exchequer, are mentioned, with special discrimination of *wine* and *ale measures;* but the weights only *after sixteen ounces* to the pound, are named. They then had no occasion for the troy weights.

At a still earlier date, in 1641, it had been prescribed that all casks for any liquor, fish, beef, pork, or other commodities to be put to sale, should be *of London assize:* and in 1646 a corresponding assize of *staves* had been ordained.

The law of 1647 did not expressly direct where the treasurer was to procure the standards: but the Exchequer and Guildhall were the only places where they were to be obtained; and, from subsequent acts, the fact appears that they were obtained there.

At the first session of the general court under the charter of William and Mary, in 1692, two laws were enacted; one, re-ordaining the London assize of casks, and specifying that the butt should contain 126 gallons, the puncheon 84, the hogshead 63, the tierce 42, and the barrel 31½ gallons; the other, for due regulation of weights and measures, declaring that the brass and copper measures, *formerly sent* out of England, with certificate out of the exchequer to be approved *Winchester* measure, according to the standard in the exchequer, should be the public allowed standard throughout the province for the proving and sealing all weights and measures thereby, and re-enacting, with an additional clause, the colonial law of 1647.

An act of the year 1700 prescribes, that the bushel used for the sale of meal, fruits, and other things, usually sold by heap, shall be not less than 18½ inches wide within side; the half bushel not less than 13¾ inches; the peck not less than 10¾, and the half peck not less than 9 inches.

It is very remarkable that this law was enacted one year *before* the act of parliament of 13 William III. which gives and prescribes in cubical inches the dimensions of the Winchester bushel. The object of the provincial law was, to prohibit the use of bushels, which,

though of the same cubical capacity, should be of shorter diameter and greater depth. It was for the benefit of the heap. It prescribed, therefore, only the diameter, without mentioning the depth; but that diameter, for the bushel, is identically the same, 18½ inches, as the act of parliament of the ensuing year declares to be the width of the Winchester bushel in the exchequer. As the provincial standard must have been the model from which the law of the province took its measure of a diameter, its perfect coincidence with the subsequent definition of the act of parliament, is a proof of the correctness of the copy from the Winchester bushel of the exchequer.

In 1705, the treasurer of the province was required by law to procure a beam, scale, and a nest of *troy weights* from 128 ounces down, marked with a mark or stamp used at the exchequer, for a public standard. Every town was to be provided with a nest of troy weights of different form from the avoirdupois: and a penalty was annexed to the use of any other than sealed troy weights, for weighing silver, bullion, or other species whatsoever, proper and *used* to be weighed by troy weights.

In the year 1707, there was an act of parliament, 6 Anne, ch. 30, "for ascertaining the rates of foreign coins in her majesty's planta-"tions in America." It had been preceded, in 1704, by a proclamation of the queen, declaring the value of many foreign silver coins, and particularly of the Spanish piece of eight, or dollar. At that period, as in a certain degree at the present, the Spanish dollar and its parts formed the principal circulating coins of this country. The act declares the value of the Seville, Pillar, and Mexican pieces of eight, to be four shillings and six-pence sterling, and their weight to be seventeen pennyweights and a half, or 420 grains. It forbids their being taken in the colonies at more than six shillings each: and this act constituted what, from that time till the period of the Revolution, in Virginia and New England, was denominated "lawful "money." The act itself was published in the province of Massachusetts Bay with the statutes of the provincial legislature, as was practised with regard to all the acts of parliament, the authority of which was recognized. It may be here incidentally remarked, that the laws of Congress, which estimate the value of the English pound sterling at four dollars and forty-four cents, are all founded upon the proportions established by this act, although the weight and value, both of the dollar and of the shilling and pound sterling, have since that time been changed. Some further observations on this subject are submitted in the appendix: from which it will appear, that the real value of our silver dollar, in the silver English half crowns or shillings of this time, is four shillings, seven pence, and nearly one farthing; and that the pound sterling of such actual English silver coins is, in the silver money of the United States, not 4 dollars 44 cents, but only 4 dollars, 34 cents, and 9 mills.

In the year 1715 a light house was built at the entrance of Boston harbor; and a tonnage duty being levied upon vessels entering the harbor, to defray the expense of building and supporting it, the rule

of measurement for ascertaining the tonnage, prescribed by the act, was, that a vessel of two decks should be measured upon the main deck, from the stem to the stern post, then subducting the breadth, from outside to outside, athwart the main beam, the remainder to be accounted her length by the keel, which, being multiplied by the breadth, and the product by one half the breadth for the depth, and the whole product divided by 100, the quotient was to be accounted the tonnage of the ship. Vessels of a single deck, or 1½ deck, were to be measured in the same manner, except the depth in hold, which was to be from the under side of the main beam to the ceiling.

In 1730 a new set of brass and copper avoirdupois weights, and of measures, was imported from the Exchequer, with certificate of their being approved Winchester measure, according to the standard in the Exchequer. These were, by a new statute, declared to be the public standards of the province: and they continue to be those of the commonwealth at this day. It does not appear that the troy weights were renewed at the same time. The standards of them had been imported only twenty-five years before, and could not need renewing.

In 1751 the act of parliament introducing the Gregorian calendar was adopted, in the usual manner, by inserting it among the laws of the provincial legislature.

Since the Revolution all the laws of the province have been revised: and, by an act of the Legislature of 26th February, 1800, all the principal regulations concerning weights and measures were renewed and confirmed.

This law declares that the brass and copper measures, *formerly* (1730) sent out of England with a certificate from the Exchequer, shall be and remain the public standards throughout the commonwealth: and it requires the treasurer of the commonwealth to cause to be had and preserved a complete set of new beams, weights, avoirdupois and troy, and measures of length and of capacity, wet and dry, to be used only as public standards. This act is to continue until Congress shall have fixed by law the standard of weights and measures.

A statute of 9th March, 1804, recites, that the troy weights used by the treasurer of the commonwealth, as state standards, had, by long use, diminished and undergone an alteration in their proportions. (They had then been just one century in use.) It directs him, therefore, to add, or cause to be added, a specified number of grains to each of the weights, from that of 128 ounces to the half ounce; or to procure new weights of the same denomination, and conformable to the state standards, with such additions: which weights, so corrected, are declared to be the standards of troy weight for the commonwealth. By information from various sources, it is known that the standards of the state of Massachusetts are, at this time, perfectly conformable to those of the Exchequer.

There are a multitude of laws regulating the assize of casks, assigning different dimensions for containing different articles. They generally prescribe the length of the staves within the chime, and

sometimes the diameter of the heads. They also specify the weight of the article which the cask is to contain. Staves are an article of exportation; and their length, breadth, and thickness, are regulated by law.

NEW HAMPSHIRE AND VERMONT.

The laws of New Hampshire, and of Vermont, relating to weights and measures, appear to have been modelled upon those of Massachusetts. In both these states the standards are required to be according to the approved Winchester measures, allowed in England, in the Exchequer. The first act of New Hampshire to that effect was of 13th May, 1718, and the last of 15th December, 1797. The statute of Vermont is of the 8th of March, 1797. Neither New Hampshire nor Vermont has established the authority of the troy weights by law.

RHODE ISLAND.

Rhode Island has no statute upon the subject. Her weights and measures are, however, the same, and her standards are taken from those of Massachusetts.

CONNECTICUT.

In the laws and standards of Connecticut there are peculiarities deserving of remark.

A statute of October, 1800, contains the following provisions: "That the brass measures, the property of this state, kept at the "Treasury, that is to say, a half bushel measure, containing *one* "*thousand and ninety-nine* cubic inches, very near, a peck measure "and half peck measure, when reduced to a just proportion, be the "standard of the corn measures in this state, which are called by "those names respectively; that the brass vessels ordered to be pro-"vided by this Assembly [one of the capacity of two hundred and "twenty-four cubic inches]* and the other of the capacity of two "hundred and eighty two cubic inches, shall be, when procured, the "first of them the standard of a wine gallon, and the other the stand-"ard of an ale or beer gallon, in this state; that the iron, or brass "rod or plate, ordered by this Assembly to be provided, of one yard "in length, to be divided into three equal parts, for feet, in length, "and one of those parts to be subdivided into twelve equal parts, for "inches, shall be the standard of those measures respectively; and "that the brass weights, the property of the state, kept at the Trea-"sury, of one, two, four, seven, fourteen, twenty-eight and fifty-six "pounds, shall be the standard of avoirdupois weight in this state."

* These brackets, in the printed volume of the laws of Connecticut, indicate that the part enclosed has been repealed.

A subsequent section (5) requires of the selectmen of each town to provide town-standards, of good and sufficient materials, which, for the standards of liquid measure, shall be copper, brass, or pewter; also, vessels for corn measure, of forms and dimensions thus described: "A two quart measure, the bottom of which, on the inside, is "four inches wide on two opposite sides, and four inches and a half "on the two other sides, and its height from thence seven inches and "sixty-three hundredths of an inch;" [137.34 cubic inches.] A quart measure of "three inches square from bottom to top, through-"out, and its height seven inches and sixty-three hundredths of an "inch;" [68.67 cubic inches.] A pint measure of three inches square from bottom to top throughout, and its height three inches and eighty-two hundredths of an inch; [34.38 cubic inches.]

The assumption of the old Guildhall wine gallon, of 224 inches, in this act, is the more surprising, inasmuch as a colonial statute of the year 1752 had already established the gallon of 231 inches. What the occasion of it was, has not been ascertained; but it was probably taken from an existing standard, which had been originally taken from the Guildhall gallon. Whatever the cause of it may have been, this part of the act was repealed the next year, (October, 1801) and the Treasurer was directed, without delay, to provide a vessel of brass, of five inches square from bottom to top throughout, and nine inches and twenty-four hundredths of an inch in height, containing two hundred and thirty-one cubic inches, which was declared the standard wine gallon of the state.

The half bushel measure, which in 1800 was the property of the state, kept at the treasury, containing 1099 cubic inches very near, was of course not originally derived from the Winchester bushel. By the colonial laws of Connecticut, it appears, that, as early as the year 1670, there were *colony standards* kept at Hartford: and the half bushel, which in the year 1800 was there at the treasury, the property of the state, was either one of those same standards of 1670, or a copy from it. That it was not borrowed from the Massachusetts standards is also manifest, because the Massachusetts bushel was copied from the Winchester bushel. It may be concluded, with great probability, that the Connecticut half bushel was first taken from the bushel in the exchequer of Henry the Seventh with a copper rim; though it contains thirteen cubic inches less than in proportion to that standard. This difference, in so large a measure, may have been the effect of very slight inaccuracy in the first copy, increased by the decay or the change of the vessel. The bushel with the copper rim was deposited at the exchequer after the act of 1496; and was made from the wine gallon of that act, with the rule of the act of 1266, and the pound of fifteen ounces troy weight. The quart and pint at the exchequer of 1601, were formed from this bushel. The pint differs less than half an inch from that prescribed by this act of Connecticut of 1800.

In the laws of Connecticut, as in those of New Hampshire and Vermont, there is no formal establishment or recognition of troy

weights; nor does there appear to be any standard of them existing in the state. But in the lists of rateable estate, prescribed by the laws of Connecticut, silver plate is estimated at one dollar eleven cents *per ounce*, which must obviously be intended the ounce troy.

The assize of casks is regulated by various laws: and the dimensions of the barrel for packing salted provisions for exportation are the same as those established in Massachusetts and New York. The London assize of *tight* casks, from the puncheon of 126 to the barrel of 31½ gallons, was co-eval with the first legislation of the colony; and was re-enacted by a statute of 1795. It expressly declares that these gallons shall be of 231 cubic inches; and directs that they shall be computed by taking, in inches and decimal parts of an inch, the bulge or bung diameter, each head diameter, and the length within the cask, with Gunter's rule of gauging.

The assize of staves is the same as in Massachusetts.

By an act of October 1796, the standard weight of wheat is declared to be sixty pounds nett to the bushel.

NEW YORK.

New York was originally the seat of a colony from the Netherlands, the settlers of which doubtless brought with them the weights and measures of their own country. Towards the close of the seventeenth century it fell into the possession of the English; and on the 19th of June, 1703, an act of the colonial legislature established all the English weights and measures, *according to the standards in the exchequer*. This act was drawn with great care, and evidently with the purpose of embracing all the provisions of the then existing English statutes, regulating weights, measures, and casks, particularly those of 1266, 1304, 1439, and 1496, without being aware of the utter incompatibility of those statutes with one another.

Instead, however, of adopting in terms the London assize of casks, from the ton of 252 gallons downwards, this act prescribes in inches the length and head diameters of the various casks; and, by a very remarkable peculiarity, changes the names of all the dry casks. It directs that

The *Hogshead* shall be	40 inches long,	33 inches in the bulge,	27 inches in the head.
Tierce	36	27	23
Barrel	30	26	22
Half barrel	25	20	16
Quarter barrel	20	16	13

But it adds, that *tite* barrels shall contain 31½ gallons wine measure, or within half a gallon more or less, and all other casks in proportion. This last provision adopted the whole London assize for tight casks. But the dimensions prescribed for the *hogshead*, give a cask of about 126 gallons, which, in the London assize, made the butt or pipe: and thus the New York tierce was of 80 gallons, which constituted the *real* contents of the London puncheon; the New York

barrel was of 60 gallons, answering to the London hogshead; and the New York half barrel of 30 gallons, to the London barrel.

On the 10th of April, 1784, the legislature of New York passed an act to *ascertain* weights and measures within the state. It declares the standard weights and measures which were in the custody of William Hardenbrook, public sealer and marker in the city and county of New York, at the time of the declaration of Independence, which were according to the standard of the exchequer, to be the standards throughout the state. William Hardenbrook was directed to deliver them to the clerk of the city and county of New York, and to make oath that they were the same which he had received from the court of exchequer.

By an act of 7th March, 1788, the standard weight of wheat brought to the city of New York for sale, was fixed at sixty pounds nett to the bushel.

On the 24th of March, 1809, passed an act relative to a standard of long measure, and for other purposes. It declares a brass yard measure, engraved and sealed at the exchequer of Great Britain, procured in 1803 by the corporation of New York, presented to the state, and deposited, with authenticating documents, in the secretary's office, to be the standard yard measure of the state.

The last statute, upon this subject, of New York, is an act, to regulate weights and measures, and passed on the 19th of March 1813; which declares that there shall be one just beam, one certain weight and measure for distance and capacity; that is to say, avoirdupois and troy weights, bushels, half-bushels, pecks, half-pecks, and quarts; and gallons, half-gallons, quarts, pints, and gills; and one certain rod for long measure, according to "the standard in use in the state "on the day of the declaration of the Independence thereof, and that "the standard of weights and measures in the office of the Secretary of "the State, which is according to the standard in the court of ex-"chequer in that part of Great Britain called England, shall be and "remain the standard for ascertaining all beams, weights and mea-"sures throughout the state, until the Congress of the United States "shall establish the standard of weights and measures for the United "States."

The assize of casks continues as it was regulated by the act of 1703: but a variety of special statutes assign dimensions different from it for barrels in which beef, pork, fish, flour, pot and pearl ashes, &c. are packed for exportation. These, as in the New England states, are adapted to contain a certain specified weight of each article. The assize of *staves* regulated by an act of 26th March, 1813, is substantially the same as that of Massachusetts: and as the capacity of the barrel must always depend in a great degree upon the size of the staves and heading of which it is made, the contents of all these barrels vary little from 30 gallons wine measure of 231 cubic inches equal to 6,930 inches.

NEW JERSEY.

In New-Jersey, which was originally a part of the Dutch settlement, the English weights and measures were established at a later period than in New York. An act of the colonial legislature, of 13th August, 1725, recites, in its preamble, that nothing is more agreeable to common justice and equity than that throughout the province there should be *one* just weight and balance, one true and perfect standard for measures, for *want* whereof experience had shown that many frauds and deceits had happened; for remedy of which, it establishes, in the first section, an assize of casks for packing of beef and pork, since altered; and in the second, declares, that there shall be one just beam and balance, one certain standard for "weights, that "is to say: for avoirdupois and troy weights, one standard for mea-"sures, bushels, *half bushels*, pecks, and half-pecks, one just stand-"ard for *liquid measures*, that is to say: wine and beer measure; "and one yard; all which shall be according to the standard of the "exchequer in Great Britain."

The phraseology of this statute has some resemblance to that of the 25th chapter of Magna Charta, and may serve as a lucid commentary upon it; for, although its avowed object is uniformity, and even *unity* of standard, it expressly sanctions two weights, avoirdupois and troy, and two liquid measures for wine and beer. This statute also, as well as that of New York of 1813, shows that the term *gallon* is improperly used when applied to dry measure, its real denomination being that of half-peck.

The laws of New Jersey relating to the assize of barrels have been various. By an act of 1774, revived in 1783, the barrel is required to contain 31½ wine gallons, and not ½ a gallon more or less; half-barrels 16 gallons, and not one quart more or less. The assize of staves (26th September, 1772,) is materially the same as in all the eastern states.

PENNSYLVANIA.

In the year 1700, two laws relating to weights and measures were enacted by the colonial legislature. The first [laws of Pennsylvania, Bioren's edition, vol. 1, page 18] ordains, that brass standards of weights and measures, according to the standards for the exchequer, should be *obtained*, and kept in each county. Sec. 2. That a brass half-bushel, then in Philadelphia, and a bushel and peck proportionable, and all lesser measures and weights coming from England, being duly sealed in London, or other measures agreeable therewith, should be accounted good till the standard should be obtained. Sec. 3. That no person should sell beer or ale by retail, *but by beer measure*, according to the standard of England.

The second, not only adopted the London assize of casks, but required that *all* tight casks, for beer, ale, cider, pork, beef, and oil, and

all such commodities, should be made of good, sound, well seasoned, white oak timber, and contain,

The Puncheon	-	-	84 gallons
Hogshead	-	-	63 „
Tierce	-	-	42 „
Barrel	-	-	31½ „
Half barrel	-	-	16 „

wine measure, according to the practice of the neighboring colonies.

This act regulated the assize of staves for hogsheads and barrels; and prescribed that tobacco hogsheads should be four feet long, or within an inch more or less, 32 inches in the head, equal to the gauge of Maryland, and be four hogsheads to a ton; that the flour cask should be not above *double* the gauge of wine measure; the half barrel to be of 31½ gallons, and the barrel of 63 gallons wine measure.

As the gauge of Maryland was adopted for tobacco, so that of New York was assumed for flour, by constituting the barrel and half-barrel at double the gauge of wine measure. The origin of this must have been in the measures of the Dutch colonies, which had reference to the *last*, or double *ton* of shipping, the customary measure of the Netherlands instead of the ton.

But the most remarkable peculiarity of these two laws of Pennsylvania, enacted at the same session of the legislature, was, that while one of them applied the London assize of wine measure to the casks which were to contain *beer*, ale, and cider, the other expressly prohibited the retailers of beer and ale from selling those liquors otherwise than by beer measure; so that the retailers were obliged to buy by the small and to sell by the large measure. This inconsistency between the two statutes will not surprise us when we recollect that it occurred precisely at the time when the trial in the court of exchequer of England was litigated, concerning the duties to be paid on Mr. Thomas Barker's importation of Alicant wine. For while he, upon a claim to pay duties upon wine only by beer measure, was reducing the Attorney general, after a trial of five hours, to withdraw a juror, and cast the remedy upon parliament, the legislature of Pennsylvania, by the same erroneous application of the same name to different things, were, certainly without intention, but, in effect, enjoining upon all the publicans of the province to pay for beer by wine measure. It was a whimsical operation of the same incongruity happening in the two hemispheres at the same time, that, while Barker was struggling successfully against the supreme authority of the mother country, to pay for wine by beer measure, the Pennsylvania publicans, by the acts of their provincial legislature, were compelled to pay for beer by wine measure, and yet to be paid for it by its own.

The remedy to these disorders was applied in England and in Pennsylvania also about the same time. In both cases, however, it was partial; applied only to the special inconvenience without reaching the source of the evil. Parliament only defined the capacity of the wine gallon, fixing it at 231 cubic inches. The Pennsylvania legislature, by an act of 1705, [P. L. Bioren's edition, vol. 1, ch. 138,

p. 43,] reciting the inconsistent provisions of their two acts of 1700, and ingenuously remarking, that, in consequence of them, *retailers are obliged to sell by far greater measure than they buy*, released them from this burthensome obligation, by authorizing innkeepers to sell beer by wine measure in their houses, and by beer measure to persons to carry it out of the house. The real evil, in both cases, had proceeded from calling the two different measures of liquids by the same name. If the beer gallon had been called a *half peck*, no such questions, and no such clashing legislation, would ever have arisen. The statute of 1700, which had prescribed the London assize of casks, was repealed only in March, 1810.

The assize of staves and heading was fixed, in Pennsylvania, by a statute of 1759, [chap. 439, vol. 1, p. 222.] It was, with slight variations, the same as in all the states eastward of it. The necessary width of all staves, for exportation, was, by this act, fixed at 3½ inches. By a subsequent act [30th March, 1803, ch. 2362, vol. 4, p. 83] staves of three inches wide are allowed as merchantable. Uninspected staves or heading may, by an act of 1790, [ch. 1501, vol. 2, p. 529] be used within the state. A great multitude of statutes in Pennsylvania, as in all the other navigating states, have regulated the assize of casks, adapting them to contain weight of the respective articles to be exported in them, and to the convenience of stowage in ships. This, as has been shewn, was the original foundation of the London assize of the ton, and of the whole English system of weights and measures: and this, in the act of Pennsylvania, of 12th September, 1789, [ch. 1422, vol. 2, p. 490,] is expressly assigned as one of the reasons for requiring casks of given dimensions.

DELAWARE.

In 1705, "An act for regulating weights and measures," directs, that each county should obtain standard brass weights and measures, according *to the queen's standards* for the exchequer; that a standard brass half-bushel should be taken from that in Philadelphia, to which the bushel and peck should be proportionable. It authorizes the use of measures and weights coming from England, duly stamped in London, or others agreeable therewith, till the standards should be procured: and it prescribes that beer or ale should be sold in retail, only by beer measure.

Subsequent acts of the legislature of Delaware define the cord of fire-wood, rate gold and silver coins by their weight in troy pennyweights and grains; and regulate the assize of casks for flour, corn, and Indian meal, in exact conformity to that of Pennsylvania.

MARYLAND.

The first act concerning weights and measures to be found in the printed editions of the statutes of this state, is of the year 1715, ch. 10. "An act relating to the standard of English weights and mea-

"sures," the preamble of which recites, that the standards are very much impaired in several of the counties of the province, and in some wholly lost or unfit for use. It therefore directs the justices of the several county courts to cause the standards they already had to be made complete, and to purchase new standards where they had none; and requires them to take security from the standard-keepers for the due execution of their office, and the safe-keeping of the standards in future.

What these standards were, is ascertained by recurrence to the records of the state for the laws, the titles only of which are given in the printed compilations of the statutes.

In 1637, at the first general assembly of which any record is extant, *a bill for corn measures* is one of forty-two which were prepared and propounded to the lord proprietary for his assent; but which were not enacted into laws, nor is there any copy of them to be found upon the record.

The next year, 1638, an act for measures and weights was one of thirty-six bills twice read and engrossed; but never read a third time, nor passed the House. There were in this bill several remarkable peculiarities. It provided that there should be one standard measure throughout the province, to be appointed by the lieutenant general, and a sealer of measures; that all contracts made for the payment of corn should be understood of corn shelled; that a barrel of new corn, tendered in payment at, or afore, the 15th of October, in any year, should be twice shaked in the barrel, and afterwards heaped as long as it will lye on; and at, or before, the feast of the nativity, should be twice shaked and filled to the edge of the barrel, or else not shaked, and heaped as before; and after the said feast it should not be shaken at all, but delivered by strike. No steelyards or other weights not sealed by the lieutenant general, or by the sealer appointed by him, were to be used, except it be small weights *sealed in England*. The act was to continue till the end of the next general assembly.

In 1641 there passed *an act for measures*, which, after reciting the inconveniences from the want of a set and appointed measure, whereby corn and other grain might be bought and sold within the province, provides, that from thenceforth *the measure used in England called the Winchester bushel* should be only used as the rule to measure all things sold by the bushel or barrel; and the barrel was to contain five such bushels. The sheriff of each county was to procure and keep such a standard bushel, whereby others should be sized and sealed, and penalties were affixed to the use of any others.

This act was to continue only two years, and then expired; but *the Winchester bushel* has, from the time of its enactment, remained the standard dry measure of Maryland.

In 1671 passed an act for providing a standard, with English weights and measures, in the several and respective counties within this province. And this statute, though omitted in all the late printed editions of the laws of Maryland, established the standard, recog-

nized by the existing act of 1715, and by all the subsequent laws of Maryland relating to the subject.

The preamble complains, that much fraud and deceit is practised in the province, by false weights and measures: for prevention of which it enacts—

That no inhabitant, or *trader hither*, shall use in trading any other *weights* or measures than are used and made, *according to the statute of Henry the Seventh King of England* in that case made and provided, [the statute of 1496.]

That, for the discovery of abuses, nine persons, who are indicated by name, one for each county then in the province, should set up a standard at their own houses, and provide by the next shipping, or the shipping then next following at farthest, twelve half hundred weights, a quartern, half-quartern, seven pounds, four pounds, two pounds, and one pound; also, each person six stamps for making stillyards and weights, to be lettered from A to I, one letter for each county; also, each person to have nine irons, numbered from one to nine, and another with cypher, for the numbering of stillyards and pea, that they might not be changed, and to procure brass measures of ell and yard, to be sealed in England; also, a sealed bushel, half-bushel, peck, and gallon, of Winchester measure, and gallon, pottle, quart, pint, and half-pint, of wine measures, with three burnt stamps for the wooden measures and three other stamps for the pewter measures, to be all of the same letter with their other stamps; and that these weights, measures, and stamps, should be kept by those nine persons at their respective houses, to which all persons were to bring their stillyards to be tried, stamped, and numbered, once a year, and also their barrels, which were to contain five bushels, and other measures, to be sealed.

The act further provides penalties for using other weights and measures, and, in case of the death of any of the nine persons named as standard-keepers, directs that other persons should be appointed by the commissioners of the respective county courts in their stead.

The limitation of the act was to three years, or the end of the next general assembly. It was revived and continued by several successive acts till 1692, when there passed "An act for the *settling of a* "*standard* with English weights and measures within the several "and respective counties in this province."

This is in substance a re-enactment and confirmation of the statute of 1671, providing, that the justices of the county courts should, from time to time, appoint a person in each county to keep the standards, and to provide all such weights and measures as were wanting, according to the directions of the act of 1671, and an additional set for Cecil county, with stamps to be marked K.

1704, September 21, ch. 71, An act *relating* to the standard of English weights and measures, has the following preamble:

"Whereas *there is now* a standard of weights and measures *agree-* "*able to the standard of weights and measures in her majesty's exche-* "*quer* in England settled within the several counties of this province."

After this preamble, the act directs, that all persons, whether inhabitants or foreigners, shall bring their stilliards, with which they weigh and receive their tobacco, every year to be tried, stamped, and numbered; and every person, trading with bushels, half bushels, &c. shall have them tried and stamped at the standard, except such as come out of England and are there stamped: and penalties are prescribed for buying or selling by stilliards or dry measures not thus tried and stamped, but they are not extended either to the weights or the liquid measures.

The titles only of all these statutes are given in the printed editions of the statutes of Maryland. But the parts of them which prescribe the standard are yet in full force. The law, is the memorable act of parliament of 1496: and the fact, in Maryland as in England, is, that the standards have been copied from those in the exchequer.

In 1765, (1st Nov. ch. 1) was passed a supplementary act to the act of 1715, already noticed, entitled "An act relating to the standard of English weights and measures."

The preamble recites, that, in the act of 1715, there is no penalty upon *buyers* by unstamped dry measures, as there is upon sellers; whence persons refuse to *buy* grain, flaxseed, and other commodities, unless by measures larger than the standard.

It, therefore, prohibits, upon £5 penalty, buying by such measures.

Neither of these two acts takes any notice either of long or liquid measures, or of weights. But the standards had been established by the statute of 1671, and have continued to this time. Beer measure appears never to have been formally established by the statute law of Maryland: but troy weight is explicitly recognized in the act of November, 1781, (ch. 16) to declare what foreign gold and silver coin shall be deemed the current money of the state. It fixes the value of several of those coins, proportionable to their weight, in ounces, pennyweights, and grains, intending, though not naming, troy weight; but rating Spanish milled pieces of eight at seven shillings and six pence, and French and English crowns at eight shillings and four pence.

In 1796, by an act to erect Baltimore, in Baltimore county, into a city, and to incorporate the inhabitants thereof, the corporation (sec. 9) are empowered to regulate and fix the assize of bread; to provide for the safe-keeping and preservation of the standard of weights and measures used within the city and precincts; also, to regulate the assize of bricks, &c. And, in 1805, by an act supplementary to the act incorporating Baltimore as a city, it is ordained, Congress not having yet fixed any standard of weights and measures, that the mayor and city council shall have and exercise the right of regulating all weights and measures within the city and precincts by the present standard, until one shall be determined on by Congress.

The assize of casks has been in Maryland, as in the other parts of the Union, both before and since our Revolution, a subject of frequent and voluminous legislation. As early as the year 1658, there had

passed an act, concerning the gauge of tobacco hogsheads, which had prescribed the length and diameter at the head of those casks, the dimensions of which were then the same as those used in Virginia. In 1676, this law was re-enacted with some additional sections, and was from time to time continued until 1732.

In November, 1763, by an act for amending the staple of tobacco, &c. the hogsheads containing that article were required to be 48 inches in the length of the stave, and 70 inches in the whole diameter within the staves, at the croze and bulge; a regulation repeated in the act of November, 1801, to regulate the inspection of tobacco, which is now in force.

In 1745, there passed an act for the gauge of barrels for pork, beef, pitch, tar, turpentine, and tare of barrels for flour or bread. It did not prescribe the dimensions of flour and bread casks; but directed, that all barrels, made or used for either of those articles, should be of the size and gauge to contain at least the quantity of 31½ gallons wine measure, and that the contents of every pork or beef barrel, for exportation or sale, should be at least 220 pounds nett of meat.

This act, though originally limited in duration to three years, and the end of the next session of the assembly, has, by successive re-enactments always limited, been continued in force to this day.

Another act, of 1786, for the inspection of salted provisions, exported and imported from and to the town of Baltimore, required that the staves of beef and pork barrels should be 29 inches long, and 18 inches diameter at the head. And these regulations, though superseded at Baltimore by the exercise of the powers vested in the corporation of that city, have been extended to other parts of the state, and are yet in force.

The size of fish barrels had been prescribed by the same act. But, in February, 1818, by an act to regulate the inspection of salted fish, it was directed, that the barrel staves should be 28 inches in length, the heads seventeen inches between the chimes, and to contain not less than 29, nor more than 31 gallons; tierces to hold not less than 45, and half-barrels not less than 15 gallons.

VIRGINIA.

Among the earliest records of the general assembly of the colony of Virginia, is an order of the 5th of March, 1623–4, that there be no weights nor measures used, but such as should be sealed by officers appointed for that purpose.

By an act of 23d February, 1631–2, it was ordained, that a barrel of corn should be accounted five bushels of *Winchester measure*, 40 gallons to the barrel. The commissioners of the monthly courts were to keep sealed barrels, and to seal such as should be brought to them. Whoever used unsealed barrels or bushels was to forfeit thirteen shillings and four pence, and sit on the pillory; and the measure and barrel deficient was to be broken and burnt. And for defective

weights, it was ordained that the offender should be punished according to the statute in that case provided.

An act of 5th October, 1646, declares, that merchants and others, as well *Dutch* as English, practice deceit by *diversity* of weights and measures used by them; and enacts, that no merchant or trader, whether English or Dutch, shall trade with other weights and measures, than according to the statute of parliament in such cases provided. What this statute of parliament was, is explained by an act of 23d March 1661-2, which declares, that, "Whereas dayly expe-"rience sheweth that much fraud and deceit is practised in this co-"lony by false weights and measures," for prevention thereof, no inhabitant, or trader hither, shall trade with any other weights or measures than are used and made according to the statute of 12 Henry VII. ch. 5. [the statute of 1496,] in that case provided; and that, for discovery of abuses, county commissioners shall provide sealed *weights* of half hundreds, quarternes, half quarternes, seaven pounds, fower pounds, two pounds, one pound, measures of ell and yard, of bushel, half bushel, peck, and gallon, of Winchester measure; gallon, pottle, quart, pint, half pint, of wine measure out of England; to be kept by the first of every commission at the house, and a burnt mark of (cv.) and a stamp for leaden weights and pewter potts, whither all persons, not using weights and measures brought out of England, and sealed there, shall bring all their barrels (which are to contain five bushels) and other measures to be sealed and their stillyards to be tried. Then follow penalties (in tobacco) for selling by other than sealed weights and measures, and upon commissioners for not providing standards.

Thus in Virginia, as in Maryland, the English statute of Henry VII. of 1496, has for near a century and a half been nominally the law of the land concerning weights and measures; while, at the same time, the actual weights and measures of capacity have been copies from the standards in the Exchequer, not one of which has ever been conformable to the statute of 1496. And this very act of Virginia, of 1661, while establishing by law the exclusive *troy* weight, *wine* gallons, and never-made bushel, of the English act of 1496, requires of the county commissioners to provide the *avoirdupois* weights and the *Winchester* measures of the English Exchequer.

In the year 1734, a new and amendatory act "for more effectual "obliging persons to buy and sell by weights and measures accord-"ing to the English standard," repeated all the principal provisions of the act of 1661, omitting, however, all reference to the English act of parliament of 1496. And since the Revolution, by an act of the legislature of Virginia, of 26th December, 1792, this act of 1734 is continued, to remain in full force until the Congress of the United States shall have otherwise provided.

Among the numerous wise and honorable examples, which the commonwealth of Virginia has given to her sister states of this Union, has been that of an undertaking to compile and publish a complete collection of her *statutes at large;* that is, of all the acts of

her legislative assemblies, from the first settlement of the colony to the present time. This work is, at this time, in the process of publication; and, besides exhibiting the series of all the direct proceedings for the regulation of weights and measures, contains a mass of information, shedding light on every portion of our national history. The connection of weights and measures with the successive progress of this legislation, is more intimate and remarkable from the fact, that the original staple commodity of the colony, *tobacco*, was, for more than a century, not only merchandise, but *money*. It was the circulating medium of exchange; and to a great degree so continued, until supplanted by the modern and less valuable article of bank paper. To trace the varieties of value, affixed to this article of tobacco, in its character of a circulating medium, as rated by legislative enactments, in comparative estimation with other articles of traffic, with the sterling currency of the mother country, with foreign coins of gold, silver, and copper, with the assessment of taxes, the levies of imposts, the wages of labor, and the compensations for public service, would be an inquiry into facts of high and interesting curiosity, but too far transcending the immediate objects of Congress, to be properly comprised in this report. It must suffice to say, that the inspection laws relating to this article have been so numerous and so variant, that the collection of them would alone fill several volumes. The latest of these laws, and that which is now in force, is of 6th March, 1819, and provides, that the tobacco hogshead shall not be more than 54 inches long of the stave, nor more than 34 inches at the head within the crow, making reasonable allowance for prizing, not exceeding two inches above the gage in the prizing head; and that it shall contain 1,250 pounds nett of tobacco, with certain allowances for shrinkage.

The assize of casks for other articles, as in most of the other states in the Union, is regulated by different laws, adapted to the different articles. The barrel for tar, pitch, and turpentine, by an act of 26th December, 1792, must contain 31½ wine gallons, the precise nominal dimensions of the old English wine barrel or half hogshead, as prescribed by acts of parliament time out of mind. But, by the same act of 1792, barrels for beef and pork are to contain 204 pounds nett of meat, with an allowance of 2½ per cent. for shrinkage; and are to be of capacity from 29 to 31 gallons. By another act of 28th December, 1795, barrels for fish are to be of not less than 30, nor more than 32 gallons. By an act of 8th January, 1814, the barrel of *salt* is to contain five bushels; agreeing thereby with the primitive Virginian corn barrel of 1631. But an act of 18th February, 1819, now requires that the barrels for bread, flour, or Indian meal, should be made of staves 27 inches long, and be of 17½ inches diameter at the head, and contain 196 pounds of flour or meal.

The size of staves and heading is regulated by an act of 21st February, 1818, as follows:

Staves—long butt, from 5 feet 6 inches to 5 feet 9 inches long,
from 5 to 6 inches broad,
from 2 to 2½ inches thick,
Short butt and pipe } from 4 feet 6 to 4 feet 9 inches long,
from 3 to 4 inches broad,
from $\frac{5}{8}$ of an inch to 1¼ thick,
Hogshead—from 3 feet 6 to 3 feet 9 inches long,
from 3 to 4 inches wide,
from $\frac{3}{4}$ to 1¼ inch thick,
Barrel—from 2 feet 8 to 2 feet 10 inches long,
not less than 3 inches wide,
not less than $\frac{3}{4}$ of an inch thick in any place,
Heading—of 28, 30, 32, in due proportion, and not more than 34 inches long,
from 5 to 7 inches broad, dressed and clean of sap, and from $\frac{3}{4}$ to 1¼ inch thick.

NORTH CAROLINA.

The only law of this state relating to weights and measures, a knowledge of which has been obtained, was enacted prior to the American revolution, during the administration of Governor Gabriel Johnston, and is yet in force. It prohibits the use, in trade, by all the inhabitants or traders within the province, of any weights and measures other than are made and used *according to the standard in the English Exchequer*, and the statutes of England in that case provided. It charges the justices of the county courts to provide, at the charge of each county, sealed weights of half hundred, quarter of hundred, seven pounds, four pounds, two pounds, one pound, and half pound; measures of ell and yard, of brass or copper, measures of half bushel, peck, and gallon, of dry measure, and a gallon, pottle, quart, and pint, of wine measure. It prescribes the appointment of standard-keepers in each county, to whom all weights and measures of the inhabitants are to be brought to be sealed, and who are to be sworn to the faithful discharge of their duties: and it subjects to suitable penalties the various offences of falsifying weights and measures, or of trading with such as have not been duly tried by the standard and sealed. It also repeals all former laws of the province upon the subject.

SOUTH CAROLINA.

By an act of 12th April, 1768, the public treasurer was required to procure, of brass or other proper metal, one weight of 50 pounds, one of 25 pounds, one of 14 pounds, two of 6 pounds, two of 4 pounds, two of 2 pounds, and two of 1 pound, avoirdupois weight, according *to the standard of London;* and one bushel, one half bushel, one peck, and

one half peck measures, according to *the standard of London.* The weights were to be stamped or marked in figures denominating their weight, and to be kept by the public treasurer: and by these weights and measures, declared to be the standards, all others in the province were to be regulated. By another act, of 17th March, 1785, subsequent to the Revolution, the justices of the county courts were authorized to regulate weights and measures within their respective jurisdictions, and to enforce the observance of their regulations by adequate penalties.

GEORGIA.

An act of the state legislature of 10th December, 1803, declares the standard of weights and measures established by the corporations of the cities of Savannah and Augusta to be the fixed standard of weights and measures within the state; and that all persons buying and selling shall use that standard until the Congress of the United States shall have made provision on that subject. It directs the justices of the inferior courts, in the respective counties, to obtain standards conformable to those of the corporation of one of those cities; and prescribes regulations for keeping the standards, and for trying, marking, and sealing, by them, the weights and measures of individuals, with penalties for using, in traffic, any others not corresponding with them.

An ordinance of the city council of Augusta directs that all weights for weighing any articles of produce, or merchandise, shall be of the *avoirdupois* standard weights; and all measures for liquor, whether of wine or ardent spirits, of the *wine* measure standard; and all measures for grain, salt, or other articles usually sold by the bushel, of the dry, or *Winchester* measure standard. And it prohibits the use of any other than brass or iron weights, thus regulated, or weights of any other description than those of 50, 25, 14, 7, 4, 2, 1, ½, ¼, pound, 2 ounces, 1 ounce, and downwards.

KENTUCKY.

An act of the legislature, of 11th December, 1798, reciting in its preamble that Congress are empowered by the federal constitution to fix the standard of weights and measures, and that they had not passed any law for that purpose, recognizes, as thereby remaining in force within that commonwealth, the act of the General Assembly of Virginia, of the year 1734.

It therefore authorizes and directs the governor to procure one set of the weights and measures specified by the Virginian act of 1734, with measures of the length of one foot and one yard; and declares that the bushel dry measure shall contain 2150⅔ solid inches, and the gallon of wine measure 231 inches. It provides that these standards shall be kept by the secretary of state of the commonwealth; that

the governor shall cause to be made and transmitted to each county, scales and standards conformable to those of the state, which are to be kept by persons to be appointed by the county courts, and with which all the weights and measures, used in trade by individuals, are to be made to correspond.

TENNESSEE.

From a communication received from the governor of the state of Tennessee, it appears that there is in that state no standard of weights and measures fixed by the legislature.

OHIO.

The only act of the legislature of the state of Ohio, on this subject, is of 22d January, 1811. It directs the county commissioners of each county in the state to cause to be made one half bushel measure, to contain $1075\frac{2}{10}$ solid inches, which is to be kept in the county seat, and to be called the standard.

LOUISIANA.

Before the accession of Louisiana to the union of these states, the weights and measures used in the province were those of France, of the old standard of Paris. An account of these, and of the present state of the weights and measures in the state of Louisiana, is submitted in the appendix to this report.

By an act of the legislature of 21st December, 1814, the governor of the state was required to procure, at the expense of the state, weights and measures corresponding with those used by the revenue officers of the United States, together with scales and a seal, to be deposited in the custody of the secretary of the state, to serve as the general standard for the state.

Provision was also made by the same act for the appointment of an inspector at New Orleans, and for furnishing standards to the several parishes throughout the state.

By the last section of this act, a special dry measure is ordained, by the name of a barrel, to contain three and a quarter bushels, according to the American standard, and to be divided in half and quarter barrel. The capacity of this measure, containing, according to the law, 6988.86 cubic inches, is referrible to none of the usual dry measures of the ancient Paris standard; but corresponds with tolerable exactness with the ancient Bordeaux half-hogshead, and with the assize of barrels prescribed by almost all the states of the Union, for packing beef, pork, and flour, for exportation.

INDIANA.

An act of the territorial legislature, of 17th September, 1807, authorized the courts of common pleas of the respective counties in the

territory, whenever they might think it necessary, to procure a set of measures and weights for the use of the county; namely, one measure of one foot, or twelve inches English measure, so called; one measure of three feet, or thirty-six inches English measure; one half bushel for dry measure, to contain 1075½ solid inches; one gallon measure, to contain 231 solid inches; the measures to be of wood, or any metal, as the court may think proper; also, one set of avoirdupois weights, to be sealed with the name or initial letters of the county. These weights and measures were to be kept by the clerks of the county courts, for the purpose of trying and sealing those used in their counties. After due notice given by the courts that these standards had been procured, all persons were prohibited from buying or selling by weights or measures not corresponding with them: and the clerk was to try and seal all weights or measures brought to him therefor corresponding with the standard. This act was to continue in force till Congress should otherwise provide.

The provisions of this act are, in substance, and nearly to the letter, repeated in an act of the state legislature, of 21st January, 1818.

There is also an act of 24th December, 1816, regulating the inspection of tobacco; and one of 2d January, 1819, regulating the inspection of flour, beef, and pork. The assize of hogsheads and of casks, prescribed in them, is the same as that of the Virginia laws.

MISSISSIPPI.

An act of the territorial legislature, of 4th February, 1807, directed the treasurer to procure a set of the large avoirdupois weights, according to the standard of the United States, if one were established, but if there were none such, according to the standard of London, with proper scales for weights; together with measures of foot and yard, dry measures of capacity, and liquid *wine* measures. He was also required to furnish each county in the territory with a set of weights, scales, and measures, conformable to the above standards, to be kept by a person appointed by the county courts, under oath, and accessible to all persons desirous of having their weights and measures tried and sealed. Penalties were also annexed to the use of weights and measures not corresponding with these standards.

A subsequent act, of 23d December, 1815, further required of the treasurer to procure six sets of the weights and measures as above described, and to distribute them at suitable places in the several counties of the territory; and additional penalties were prescribed for the use of weights and measures not corresponding with the standard.

An act of the legislature of the state of Mississippi, of 6th February, 1818, "to provide for inspections, and for other purposes," contains many other regulations for the keeping of the standard weights and measures, and for securing conformity to them. It makes no alteration of the standard, but confirms, "until Congress shall fix a

"standard for the United States," that which had already been established. It also requires that barrels of flour should contain 196 pounds nett; and barrels of pork and beef 200 pounds nett of meat.

ILLINOIS.

The territorial act of 17th September, 1807, passed while the state of Illinois formed a part of the Indiana territory.

But by an act of the legislature of this state "regulating weights "and measures," of 22d March, 1819, the county commissioners of each county in the state were required to procure, at the expense of the county, one foot and one yard English measure; a gallon liquid or wine measure, to contain 231 cubic inches; corresponding quart, pint, and gill measures, of some proper and durable metal; a half bushel dry measure, to contain eighteen quarts, one pint, and one gill, wine measure, or 1075.2 cubic inches, and a gallon dry measure, to contain one-fourth part of the half bushel, these two measures to be of copper, or brass; also, a set of weights, of one pound, one half pound, one eighth pound, and one sixteenth pound, made of brass or iron, the integer of which to be denominated one pound avoirdupois, and to equal in weight 7,020 grains troy, or gold weight. These weights and measures are to be kept by the clerk of the county commissioners, for trying and sealing the measures and weights in common use.

All persons are authorized to have their weights and measures tried by the standards, and sealed; and are forbidden, upon suitable penalties, to buy or sell by others not corresponding with them.

The most remarkable peculiarity of this act is, its departure from the English standard weights by fixing the avoirdupois pound at 7,020 instead of 7,000 grains troy.

ALABAMA.

This state having formed a part of the Mississippi territory, previously to the admission of the state of Mississippi into the Union in 1817, the acts of that territory of 4th February, 1807, and 23d December, 1815, embraced this section of territory. No act of the state legislature of Alabama, on this subject, is known to have been passed.

MISSOURI.

The territorial legislature, by an act of 28th July, 1813, directed the several courts of common pleas within the territory to provide, for and at the expense of the respective counties, one foot and one yard English measures; one half bushel, to contain 1075$\frac{1}{5}$ solid inches, for dry measure; one gallon, to contain 231 solid inches, and smaller liquid measures in proportion; to be of wood, or any metal the court

should think proper; also, one set of avoirdupois weights, and one seal, with the initial of the county inscribed thereon: all to be kept by the clerks of the courts of common pleas, or circuit courts, for the purposes of trying and sealing the measures and weights used in their counties.

The use, or keeping to buy or sell, of weights or measures not corresponding with these standards, after due notice, was prohibited under penalties by the same acts; but with a proviso, that all contracts or obligations, made previous to the taking effect of the act, should be settled, paid, and executed, agreeably to the weights and measures in common use when the contracts or obligations were made or entered into.

DISTRICT OF COLUMBIA.

By the act of Congress of 27th February, 1801, concerning the District of Columbia, the laws of the state of Virginia, as they then existed, were continued in force in the part of the District which had been ceded by that state, and the laws of Maryland in the part of the District ceded by Maryland.

The act to incorporate the inhabitants of the city of Washington, of 3d May, 1802, authorizes the corporation to provide for the safe keeping of the standard of weights and measures fixed by Congress, and for the regulation of all weights and measures used in the city.

The supplementary act, of 24th February, 1804, gives the city council power to establish and regulate the inspection of flour, tobacco, and salted provisions; and the gauging of casks and liquors.

And by the act of 4th May, 1812, further to amend the charter of the city of Washington, further power is given to the corporation to regulate the measurement of, and the weight by which, all articles brought into the city for sale shall be disposed of.

The weights and measures of the city have, accordingly, been regulated by various acts of the corporation, conformably to the standard used in the state of Maryland. The inspection laws, the assize of tobacco hogsheads and flour casks, the dimensions of bricks and of cord wood, are all formed upon the same model. The weight of bread is adapted once a month to the price of flour: but by a special ordinance, all coal for sale within the city is sold by a measure containing five struck-standard half bushels, stamped and marked by the sealer of weights and measures, and the stricken measure of which is considered as two bushels.

As preliminary remarks, in reference to that part of the resolutions of both Houses, which requires the opinion of the Secretary of State with regard to the measures which it may be proper for Congress to adopt in relation to weights and measures, it may be proper to state the extent of what can be done by Congress. Their authority to act

is comprised in one line of the constitution, being the fifth paragraph of the eighth section and first article; in the following words: "*to fix the standard of weights and measures.*"

It may admit of a doubt whether under this grant of power is included an authority so totally to subvert the whole system of weights and measures as it existed at the time of the adoption of the constitution, as would be necessary for the introduction of a system similar to that of the French nation. To *fix* the standard, appears to be an operation entirely distinct from changing the denominations and proportions already existing, and established by the laws, or immemorial usage. And this doubt acquires a further claim to consideration, if it be true, as the experience of other nations seems to warrant us in the conclusion, that there is no object of regulation by human power, in which the prescriptions of a government are so difficult to be carried into execution. Throughout Europe, in the most absolute as well as in the freest governments, every historical research presents a fruitless struggle on the part of authority to introduce order and uniformity: and an unconquerable adherence of custom to the diversities of usage among the people. There is perhaps less of this diversity in the United States, than in any country in Europe. At the adoption of the constitution all the weights and measures in common use throughout the United States were derived, either by the statutes of the states, or by an invariable usage, which had supplied the place of law, from the standards in the English exchequer. Hence, the English foot, divided into twelve inches, was the unit of all measures of matter in length, breadth, or thickness. Its various multiples of the yard, ell, perch, pole, furlong, acre, and mile, were all recognized by the laws, and in the familiar use of the people. The avoirdupois and troy weights with the difference of modification of the latter as used for weighing the precious metals or apothecary's drugs in retail, the wine gallon of 231, and the beer gallon of 282 solid inches, were equally well known, and in general use, and the Winchester bushel, of 2150.42 solid inches, formed the general standard of all the dry measures of capacity.

In many of the states the standards established by statute had been procured from the court of exchequer; and the only variety discernible in the legislation of the states on this subject, arises from a difference existing in the several standards of the same measures at the exchequer, and at Guildhall in London.

In the exercise of the authority of Congress, with a view to the general principle of uniformity, there are four different courses of proceeding which appear to be practicable.

1. To adopt, in all its essential parts, the new French system of weights and measures, founded upon the uniformity of identity.

2. To restore and perfect the old English system of weights, measures, moneys, and silver coins, founded upon the uniformity of proportion.

3. To devise and establish a system, in which the uniformities of identity and of proportion shall be combined together, by adaptations of parts of each system to the principles of the other.

4. To adhere, without any innovation whatever, to our existing weights and measures, merely fixing the standard.

1. In the review which has been taken, and the comparison which has been submitted to Congress, between the old English, and the new French, or as they may with more propriety be called, the ancient and the modern systems of metrology, it has been the endeavor of this report to show, that, while each of these systems embraces principles of the highest importance, neither of them includes all the elements resulting from the nature of the relations between man and things as created beings, and between man and man in society, mingling in the purposes to which weights and measures are applicable. The opinion has been expressed, that the uniformity of proportion in the ancient system, uniting weight and measure by the relative gravity, extension, and numbers, incident to dry and liquid substances, possessed advantages, of which the uniformity of identity in the modern system was entirely deprived; that the property of the ancient system, by which the money weight and the silver coin were the same, the most useful of all uniformities of which weights, measures, money, and coins are susceptible, was very imperfectly adapted to the modern system of France; that the French system, admirable as it is, looked, in its composition, to weights and measures, more as exclusively matters of account, than as tests of quantity; that, in its eagerness for extreme accuracy in the relations between things, it lost sight a little of the relations of weights and measures with the physical organization, the wants, comforts, and occupations of man; that, in its exclusive partialities for decimal arithmetic, it forgot the inflexible independence and the innumerable varieties of the forms of nature, and that she would not submit to be trammelled for the convenience of the counting house. The experience of the French nation under the new system has already proved, that neither the immutable standard from the circumference of the globe, nor the isochronous vibration of the pendulum, nor the gravity of distilled water at its maximum of density, nor the decimation of weights, measures, moneys, and coins, nor the unity of weight and measure of capacity, nor yet all these together, are the only ingredients of practical uniformity for a system of weights and measures. It has proved, that gravity and extension will not walk together with the same staff; that neither the square, nor the cube, nor the circle, nor the sphere, nor the revolutions of the earth, nor the harmonies of the heavens, will, to gratify the pleasure, or to indulge the indolence of man, be restricted to computation by decimal numbers alone.

The substitution of an entire new system of weights and measures, instead of one long established and in general use, is one of the most arduous exercises of legislative authority. There is indeed no difficulty in enacting and promulgating the law; but the difficulties of carrying it into execution are always great, and have often proved insuperable. Weights and measures may be ranked among the necessaries of life, to every individual of human society. They enter into the economical arrangements and daily concerns of every family.

They are necessary to every occupation of human industry; to the distribution and security of every species of property; to every transaction of trade and commerce; to the labors of the husbandman; to the ingenuity of the artificer; to the studies of the philosopher; to the researches of the antiquarian; to the navigation of the mariner, and the marches of the soldier; to all the exchanges of peace, and all the operations of war. The knowledge of them, as in established use, is among the first elements of education, and is often learnt by those who learn nothing else, not even to read and write. This knowledge is rivetted in the memory by the habitual application of it to the employments of men throughout life. Every individual, or at least every family, has the weights and measures used in the vicinity, and recognized by the custom of the place. To change all this at once, is to affect the well-being of every man, woman, and child, in the community. It enters every house, it cripples every hand. No legislator can attempt it with any prospect of success, or any regard to justice, but upon two indispensable conditions: one, that he shall furnish every individual citizen easy access to the new standards which take the place of the old ones; and the other, that he shall enable him to *know* the exact proportion between the old and the new. A multiplication of standard copies to a great extent is indispensable; and the distribution of them throughout the country, so that they may be within the means of acquisition to every citizen, is among the duties of the government undertaking so great a change. Tables of equalization must be circulated in such a manner as to find their way into every house; and a revolution must be effected in the use of books for elementary education, and in all the schools where the first principles of arithmetic may be taught. All this has been done in France; and all this might be done perhaps with more ease in the United States. But, were the authority of Congress unquestionable to set aside the whole existing system of metrology, and introduce a new one, it is believed that the French system has not yet attained that perfection which would justify so extraordinary an effort of legislative power at this time.

The doubts entertained whether an authority, so extensive as this operation would require, has been delegated to Congress, are strengthened by the consideration of the character of the executive power, corresponding with the legislative authority. The means of execution for exacting and obtaining the conformity of individuals to the ordinances of the law, in the case of weights and measures, belong to that class of powers which, in our complicated political organization, are reserved to the separate states. The jurisdictions to which resort must be had for transgressions of this description of laws, are those of municipal police. In England they were originally of the resort of views of frankpledge in every separate manor, and have since been transferred to the clerks of the market and to the justices of the peace. The sealers of weights and measures, officers who have the custody of the standards, and the authority to compare with them, from time to time, the weights and measures used by individuals, and

to prosecute for all offences by variations from the standards, and the courts before whom all such offences are triable, are institutions not only existing in almost every state in the Union, but essentially belonging to that portion of public authority suited to the state administration rather than to that of the Union. It is a general principle of our constitutions, that, with every delegation of legislative authority, a co-extensive power of execution has been granted. Affairs of municipal and domestic concern have, for obvious reasons, been reserved to the state authorities; and of this character are most of the regulations and penal sanctions for securing conformity to the standards of weights and measures. In *fixing the standard*, it is believed that Congress must rely almost entirely, if not altogether, upon state executive authorities, for carrying their law into execution. And, although this reliance may be safely indulged in relation to a law which should merely fix the uniformity of existing standards, its efficacy would be very questionable in the case of a law of great and universal innovation upon the habits and usages of the people. Of such a law the transgressions could not fail to be numerous: any doubt of the authority of the legislator would stimulate to systematic resistance against it: and the power of enforcing its execution being in other hands, naturally disposed to sympathise with the offender, the whole system would fall into ruin, and afford a new demonstration of the impotence of human legislation against the laws of nature, in the habits of man.

2. The restoration of the old English, which was also the Greek and Roman, system of weights, measures, and silver coins, founded upon the uniformity of proportion, would require an exercise of authority no less transcendent than the introduction of the French system. Its advantages were, the identity of the money weight and silver coin, the wine gallon at once a multiple of the money weight, and an aliquot part of the cubic foot; and its proportions of the money and commercial pounds, and of the wine and corn gallons, to the relative specific gravity of wine and wheat. But, as all these combinations were founded upon the assumption that the relative gravity of wheat to wine was as 4 to 5, and that the gravity of wine and of spring water was the same; and as it allowed of the making of the wine gallon by the two processes, by the weight of wheat multiplied, and by the weight of the cubic foot of water divided, the result of the two processes was not exactly the same. The Irish gallon, of 217.6 inches, was made by one process; and the Rumford gallon, of 266.25, was its corresponding corn and ale measure. A wine gallon of 219.5 cubic inches was made by assuming 252 gallons as the measure of the ton, or 32 cubic feet; and its corresponding corn measure was the Winchester bushel, with an ale gallon of 268. The Winchester bushel is the only existing relic of the old English system, which has outlived all the changes of the laws, and all the revolutions of ages. Should that be retained, and its contents fixed at 2148.5, to restore and perfect the whole system by an exact combination of the two modes of forming the water gallon, without regard to the weight of

wine, would require a liquid gallon of 219.5 inches, a dry gallon of 268.5, a money pound of 5714.28, and a commercial pound of 6944.44 grains troy. This money pound should then be made the weight of the unit of silver coins, of a settled standard purity, and might be decimally divided, like our present silver coins, and decimally or duodecimally divided as a weight. Or, the ton might be declared to contain 256 gallons, of 216 cubic inches; in which case the money pound would be of 5625, and the commercial pound of 6836 grains troy; the corn and ale gallon of 262.5, and the bushel of 2100 cubic inches. If the old easterling 12 and 15 ounce pounds should be restored, and the gallon, according to its primitive composition, be made to contain ten 12 ounce pounds of wine, it would then be, considering the gravity of wine as of 250 grains troy to a cubic inch, of the same capacity of 216 cubic inches. It would also contain eight 15 ounce pounds, of 6750 grains troy; but the proportion between the two pounds would not be exactly that between the gravity of wheat and wine. The wine gallon, filled with eight 12 ounce pounds of wheat, would contain, in wine, eight pounds, not of 6750, but of 6608 grains; and, if divided into fifteen ounces, the ounce would not be the easterling, but the avoirdupois ounce.

3. The proportions between the existing troy and avoirdupois weights, and between the wine gallon of 231, and the beer gallon of 282 cubic inches, are more exactly those between the specific gravity of wheat and of spring water, than were the easterling pounds of 12 and 15 ounces, or those of the primitive gallon of 216 inches with the ale gallon deduced from the Winchester bushel. They are exact, to the utmost degree of precision; but these proportions are without use. Neither does the wine gallon contain an exact number of pounds of wine, nor is the beer gallon an aliquot part of the bushel. These were proportions, in their origin, of great usefulness, but imperfectly settled. The whimsical operation of time and human laws upon them has been to make the proportions perfect, but to render them useless. There are, nevertheless, very useful proportions in our existing weights and measures, one of which is between the ton measure of water and the pound avoirdupois. As 1,000 ounces avoirdupois weigh exactly one cubic foot of water, it follows that the ton of 2,000 pounds weight is the ton of 32 cubic feet measure. The other is between the pound avoirdupois and the pound troy; the former consisting of precisely 7,000 grains troy. The pound avoirdupois is therefore the connecting link between weight and linear measure. It is at once a test and standard of the cubic foot, of the ton measure, and of the troy weight; while the foot, the ton, and the troy weight, are each, by this connecting link, tests and standards of each other, and of the avoirdupois pound. But the thirty-two cubic feet, which are at once the ton weight of two thousand pounds, and the ton measure of water, are not sufficient, as measure, to contain the same weight of wheat. The bushel is the measure containing the same weight of wheat which the cubic foot contains of water. Thirty-two bushels, therefore, contain the ton weight, of two thousand pounds avoir-

dupois: but they would make a *ton* measure within a small fraction of 39 cubic feet.

The avoirdupois pound of 16 ounces, and of 7,000 grains troy, is used, however, only for quantities of less than a quarter of a hundred pounds. It then receives an accession of 12 per cent. on its quantity: the quarter of a hundred contains 28 pounds, the hundred 112, and the ton of 2,000 actually contains 2,240. If the hundred and twelve pounds should be considered as a nett hundred, each pound would be of 7,840 grains troy weight, and would bring it within one-quarter of an ounce troy to the weight of the French half kilogramme or usual pound. If the wine gallon were, as under the statute of 1496 it should have been, and as the Guildhall gallon before the statute of 5 Anne actually was, of 224 inches, it would have had two further useful coincidences: it would have contained just eight pounds avoirdupois of wine; eight pounds troy weight of wheat; and a number of cubic inches in decimal subdivision to the number of pounds avoirdupois in the ton of 2,240, or twenty hundred of 112 pounds.

There are two changes, therefore, in our existing weights and measures, which would restore and perfect the system of ancient metrology; one, to make the troy weight the unit of our silver coins, in which case it might be decimally divided as coin, retaining its divisions into ounces, pennyweights, and grains, as a weight; and the other, to restore the wine gallon of 224 inches, with its corresponding ale gallon of 272, and bushel of 2,176 inches.

But it has been already remarked, that in the ancient system, founded on the uniformity of proportion between the relative extension and gravity of wheat and wine, there were, in the double sets of weights and measures of capacity, two advantages; one, of a general nature, resulting from it as proportional, without reference to the articles selected for settling the proportions; and the other special, arising from the selection of wheat and wine as the articles. The first belongs to every proportional system, of which the proportion between the standards is accurately ascertained, and consists in this, that each weight and each measure is a test and standard for all the others. The second depends on the selection of the articles, and is limited to the conveniences and facilities of trade, commerce, and navigation, as incidental to them. Reasons have been suggested, why the two articles of wheat and wine should have been selected in the primitive system, as being, from the nature and physical constitution of man, the first, and, for many ages, the greatest and most important articles of traffic. The necessity for establishing a proportion between the relative weight and measure of those articles, was also dictated by the practice of transporting them both by sea in ships.

The space in cubic feet which would be filled by a determinate weight of each of them was an object of essential importance to be known, not as a philosophical theory, but for every mechanical operation of the commerce. The size of the cask must be adapted to the capacity and the burthen of the ship: and when the ton weight of wine had been adapted to the ton measure of water, it became of the

utmost use to make the measure of corn so correspond with the cask of wine, as to contain the same determinate quantities by weight. But in modern times, and especially to these United States, neither wheat nor wine is an article of primary importance in domestic trade, or in foreign commerce. Whatever may be the capacities of our country for producing wine, they have hitherto scarcely been discovered. Tea and coffee have taken the place of wine as comforts, or next to necessaries of life; and have degraded that article into the class of luxuries. We import little, and export none of it. We receive it in the casks of the several countries from which it comes: and although the laws of some of our states, as well as those of England, still exhibit the absurdity of requiring that the hogshead should contain 63 wine gallons of 231 cubic inches, because it once contained 63 gallons of 219½ inches, yet no one complains that the real hogshead is just what it was 600 years ago, without either swelling to the dimensions of queen Anne's cubic inches, or contracting the gravity of its contents to the troy weight of Henry the Seventh. We raise vast quantities of wheat, but export it almost exclusively in its manufactured state of flour. The weight of wine is, between the buyer and seller, never a subject of inquiry. We have universally the Winchester bushel, defined by the 13 William III, of 2,150.42 cubic inches, with the single exception of the state of Connecticut, whose standard bushel is *very near* 2,198 inches. And the laws of many of the states require, that the bushel should contain 60 pounds avoirdupois of wheat. Should a standard bushel now be made in the manner described in the statute of 1266, it would be a measure of 2,148.5 cubic inches, and would contain 60½ avoirdupois pounds of wheat. The relative proportion between the extension and specific gravity of wheat and wine is to us, therefore, of no importance or use in our system of weights and measures. When the wine gallon contained a determinate weight of the liquor, and was at the same time a 63d part of eight cubic feet, there were motives of convenience and utility in using another measure for ale and beer, which, being brewed from grains, had natural proportions to the measures used for them. It was natural, therefore, to employ the eighth part of the measure of the bushel as the beer gallon, though at the same time a vessel of smaller size was used for the measurement of wine. But since the weight of wine, and the proportions of its measuring vessel to the cubic foot, have ceased to be of any account, there is no purpose of utility answered by the employment of two different measures for different fluids; while there is great tendency to error and fraud in the use of two such measures, of the same materials and bearing the same name.

4. Our system of weights and measures is, therefore, susceptible of great improvements, by restoring some of the principles which belonged to the system from which it was originally derived. It is perhaps still more improvable, by the adoption of some of the principles contained in the new French metrology. There is no doubt that the decimal divisions might be introduced to great advantage

both into linear measure by the adoption of the metre, and into weights, by identifying the money weight with the silver coin. It is believed that a system, embracing the essential advantages of all the three, might, without much difficulty, be combined; and that it would be better adapted than either of them, to the use of all human kind, and thus secure, in its utmost possible extent, the uniformity with reference to persons.

Weights and measures, and the final establishment of a system for them, with a view to the utmost practicable extent of uniformity, are at this moment under the deliberative consideration of four populous and commercial nations—Great Britain, France, Spain, and the United States. The interest is common to them all: the object of *uniformity* is the same to all. Could they agree upon one result, the advantages of that agreement would be great to each of them separately, and still greater in all their intercourse with one another. But this agreement can be obtained only by consultation and concert. It is, therefore, respectfully proposed, as the foundation of proceedings necessary for securing ultimately to the United States a system of weights and measures which shall be common to all civilized nations, that the President of the United States be requested to communicate, through the ministers of the United States, in France, Spain, and Great Britain, with the governments of those nations, upon the subject of weights and measures, with reference to the principle of uniformity as applicable to them. It is not contemplated by this proposal, that the communication should lead to any conventional stipulations or treaties; but it is hoped that the comparison of ideas, and the mutual reciprocation of observation and reflection, may terminate in concurrent acts, by which, if even universal uniformity should be found impracticable, that which would be obtained by each nation would at least approximate nearer to perfection.

In the mean time, should Congress deem it expedient to take immediate steps for accomplishing a more perfect uniformity of weights and measures within the United States, it is proposed that they should assume as their principle, that no innovation upon the existing weights and measures should be attempted.

To fix the standard of weights and measures of the United States as they now exist, it appears that the act of Congress should embrace the following objects:

1. To *declare* what are the weights and measures to which the laws of the United States refer as the legal weights and measures of the Union.

2. To procure positive standards of brass, copper, or such other materials as may be deemed adviseable, of the yard, bushel, wine and beer gallons, troy and avoirdupois weights; to be deposited in such public office at the seat of government as may be thought most suitable.

3. To furnish the executive authorities of every state and territory with exact duplicates of the national standards deposited at the seat of government.

4. To require, under suitable penal sanctions, that the weights and measures used at all the custom-houses, and land surveys, and post offices, and, generally, by all officers under the authority of the United States, in the execution of their laws, should be conformable to the national standards.

5. To declare it penal to make or to use, with intent to defraud, any other weights and measures than such as shall be conformable to the standards.

1. The existing weights and measures of all the states of this Union are derived from the exchequer, or from the laws of Great Britain. The one common standard, from which they are all deduced, is the English foot, divided into twelve inches, and three of which constitute the yard. The positive standard yard is a brass rod of the year 1601, in the British exchequer. The unit of measure is the foot of twelve equal inches. The inch, by the English laws, is divided into three equal parts, called barley-corns; but this division is not used in practice. The practical divisions of the inch, are, at option, binary, or decimal; that is, of halves, quarters, and eighths; or of tenths, hundredths, and thousandths. Thirty-two cubic feet of spring water, at the temperature of 56 degrees of the thermometer of Fahrenheit, constitute the ton weight of two thousand pounds avoirdupois. The pound avoirdupois consists of sixteen ounces; the ounce, of sixteen drams. The pound avoirdupois is equal in weight to seven thousand grains troy, or to fourteen ounces, eleven pennyweights, sixteen grains troy. The troy pound consists of twelve ounces; each ounce of twenty pennyweights, each pennyweight of twenty-four grains. It is otherwise divided for the use of apothecaries; but the grain and the pound are the same. The troy pound is equal in weight to 13 ounces and $2\frac{2}{3}$ drams avoirdupois.

The bushel is a cylindrical vessel $18\frac{1}{2}$ inches in diameter, and eight inches deep; or any vessel of 2,150.42 cubic inches. It is divided into four pecks, each peck into four pottles, each pottle into two quarts, each quart into two pints.

The ale and beer gallon is a vessel of 282 cubic inches. It is divided into four quarts, each quart into two pints, each pint into four gills.

The wine gallon is a vessel of 231 cubic inches; divided, like the beer gallon, into wine quarts, pints, and gills.

Any cubic vessel of 12.9 inches in length, breadth, and thickness, is of equal contents with the Winchester bushel. Any cubic vessel of 6.55767, is of equal contents with the ale gallon. Any cubic vessel of 6.13579 is a wine gallon.

For the purposes of the law, it will be sufficient to declare, that the English foot, being one-third part of the standard yard of 1601 in the exchequer of Great Britain, is the standard unit of the measures and weights of the United States; that an inch is a twelfth part of this foot; that thirty-two cubic feet of spring water, at the temperature of 56 degrees of Fahrenheit's thermometer, constitute the ton weight, of 2,000 pounds avoirdupois; that the gross hundred of avoirdupois

weight consists of 112 pounds, the half hundred of 56, and the quarter hundred of 28, the eighth of a hundred of 14, and the sixteenth of a hundred of 7 pounds; that the troy pound consists of 5,760 grains, 7,000 of which grains are of equal weight with the avoirdupois pound; that the bushel is a vessel of capacity of 2,150.42 cubic inches, the wine gallon a measure of 231, and the ale gallon a measure of 282 cubic inches.

The various modes of division of these measures and weights, the ell measure, and the application of the foot to itinerary, superficial, and solid measure, producing the perch, rood, furlong, mile, acre, and cord of wood, may be left to the established usage, or specifically declared, as may be judged most expedient. The essential parts of the whole system are, the foot measure, spring water, the avoirdupois pound, and the troy grain.

2. For the purpose of uniformity, it would be desirable to obtain a copy, as exact as the most accomplished art could make it, of the standard yard of 1601, in the exchequer of Great Britain, made of the same material, brass, but divided with all practicable accuracy into three feet, and thirty-six inches, and each inch further divided into tenth and hundredth parts. This rod, with the words, "standard yard measure of the United States—three feet—thirty-six inches:" and the date of the year engraved on one of its sides, should be enclosed in a wooden case, and deposited for safe-keeping in one of the offices at the Capitol. From the foot measure of this yard, the standard bushel, and two gallons, should be made. The avoirdupois pound, and the troy weight of 256 ounces, should be made exactly conformable to the standards in the exchequer. The weights of 56, 28, 14, and 7 pounds avoirdupois, should be made exact multiples of the pound weight. But no subdivisions of the bushel or gallons, or of the avoirdupois pound, should be placed among the standards. An enactment, that no subdivisions of the standards, other than in the due proportion to them, should be legal, would avoid the inconvenience and the varieties which multiplied material standards always produce. All the standards should, like the yard, have their names, as standards of the United States, the date of the year, and a designation of quantity engraved upon them. On the bushel, for instance,—"$2150\frac{42}{100}$ cubic inches;" on the wine and ale gallons, respectively, 231 and 282 inches; on the avoirdupois pound "7,000 grains troy weight, avoirdupois pound," on the troy weights "256 ounces—12 ounces, and 5,760 grains to the pound troy weights." These standards, all enclosed in suitable cases, to preserve them from injury, and, as effectually as possible, from decay, should be deposited in the custody of a sworn and responsible officer, with the standard yard.

3. These national standards being thus made and deposited, exact copies of them should be made of the same materials, substituting for the words "standard of the United States," engraved upon the originals, the words "United States" standard, state "of——:" and these copies should be transmitted to the executives of every state in

the Union. The standard for the territories might leave the name of the state to be engraved when the territory should pass to that condition: and the standards for the District of Columbia might properly be committed to the charge of the clerk of the supreme court of the United States.

4. It should be made the duty of the collectors, surveyors, and naval officers of the customs, the registers of the land offices, and receivers of public moneys, of the postmaster general, and all postmasters, the quartermasters, and commanding officers at military posts of the army, the commanding officer and purser of every vessel of the navy, the commanding officer at the military academy, of all Indian agents, and of the marshals of the several judicial districts of the United States, to ascertain, and to certify in writing, upon oath, to the heads of their respective departments, that the weights and measures used by them, in the discharge of their official duties, are conformable to the standards of the United States. And to secure the future observance of this uniformity, every such officer, civil or military, to be appointed hereafter, should, together with the oath to support the constitution of the United States, have administered to him an oath that he will, in the discharge of his official duties requiring the employment of weights and measures, scales and beams, use such as are conformable to the legal standards of the United States, and not knowingly any others. To the penalties of removal from, and disqualification for office, might be added a right of action for damages, given to any person injured by the wilful neglect or refusal of any such officer to observe the requisitions of the law.

5. The offence of fraudulently or wilfully making or selling any weight, measure, scales, or beam, to be used as conformable to the United States' standards, and not conformable, might be made punishable by fine and imprisonment, upon presentment and conviction before the circuit courts of the United States.

The existing laws of all the states should be declared, so far as they are conformable to the act of Congress *fixing* the standard, to remain unrepealed and in full force. All sealers of weights and measures, and all persons appointed under the authority of the several states for the custody of standards, should be required to ascertain them to be conformable to the standards of the United States. It is scarcely possible that any law of the United States to establish uniformity of weights and measures throughout the Union, should be made effectual, without the cordial aid and co-operation of the state legislative and executive authorities. This is one of the most powerful reasons which have led to the conclusion, that, in fixing the standard, all present innovation should be avoided. The standards of all the states are now, or by their laws should be, the same as those herein proposed, excepting only the Connecticut bushel, the change in which will be inconsiderable. Several of the states have systems well organized, and in full operation for the uniformity of their weights and measures. The standards of many of them are incorrect; some from careless usage and decay; others from having been copies

of copies made without much attention to accuracy; and, others from having transferred to this country all the varieties of the original standards in the exchequer. The object of the act, the substance of which is now proposed to Congress, would be, to make the uniformity already existing by the laws and usages of every part of the Union more effectual and perfect in point of fact. The table* of a return from the several custom houses of the United States will shew the extent of the existing varieties; and while they add new demonstration of the justness of the sentiment universally prevailing, that the authority delegated to Congress by the constitution, of fixing the standard, should be exercised without delay, they also show that the best exercise of that authority will be by making it essentially auxiliary to the efficacy of the existing state laws.

In the consultation which it is proposed that the President of the United States should be requested to authorize and conduct with foreign governments, with a view to future, more extensive, and perfect uniformity, there is one object, which, it is presumed, may be accomplished with little difficulty or expense, and by means of which the standard from nature of the new French system, the metre, may be engrafted upon our system without discomposing any of its existing proportions.

In all the proceedings, whether of learned and philosophical institutions, or of legislative bodies, relating to weights and measures within the last century, an immutable and invariable standard from nature of linear measure has been considered as the great desideratum for the basis of any system of metrology. It is one of the greatest merits of the French system to have furnished such a standard for the benefit of all mankind, in the metre, the ten millionth part of the quarter of the meridian. Of the labors, and researches, and liberal expense, and art, and genius, which have been lavished by France upon this operation, and of the success with which it has been accomplished, the notice which it amply merited has already been taken in this report. Since this great and admirable undertaking has been achieved, a disposition to detract from its merit and usefulness has been occasionally manifested. Some philosophical speculators have started doubts whether the metre is really the forty millionth part of the circumference of the earth; and indeed whether such a measure can, with perfect accuracy, be ascertained by human art. Other standards from nature have been suggested as preferable to the arc of the meridian: individual passions and antisocial prejudices have insinuated themselves into the inquiry: and the question between the metre and the pendulum has almost festered into a test of party controversy, and an engine of national jealousy. In the establishment of the French system, the pendulum, as well as the meridian, has been measured; but the *standard* was, after long deliberation, after a cool and impartial estimate of the comparative advantages and inconveniences of both, definitively assigned to the arc of the meridian, in departure

* See Appendix.

from an original prepossession in favor of the pendulum. Two reasons are deemed decisive for concurring in the principle of this determination; one, that the earth being the greatest object of actual measurement within the physical powers of man, an aliquot part of its circumference is the only measure, which, applicable to that object, is also equally applicable to every other purpose of weight or mensuration; and the other, that this standard once settled is invariable, while the pendulum, being of different lengths in different latitudes, is essentially defective in one of the most important principles of uniformity, that of *place* or capacity of application to every part of the earth.

It is proposed, therefore, to discard all consideration of the pendulum: as the theory of its vibrations, however interesting in itself, is believed to be, since the definitive determination of the metre, useless, with reference to any system of weights and measures. Nor is it of more importance to know whether the metre really be, within the ten thousandth part of an inch, an exact aliquot part of the circumference of the earth. An error to that, or even to a greater extent, admitted to be possible, leaves for all practical purposes of human life, even including the operations of geography and astronomy, the metre as perfect a standard for weights and measures as any other that ever was devised, and a much more perfect one than the pendulum.

It is therefore submitted to the consideration of Congress, that, in the act for fixing the standard of weights and measures for the United States, together with a definition of the foot, its exact proportion to the standard metre of France should be declared: to effect which purpose with the utmost attainable accuracy, it would be necessary to compare together the identical measure, to be used hereafter as the standard linear measure of the Union, with the standard metre in platina, deposited in the national archives of France. It is not doubted that the French government would readily give their assent to this operation, and would agree that it should be performed in such manner as to settle, definitively, for the future use of both countries, the exact proportion to the ten thousandth part of an inch, between the foot measure of the United States and the metre. From the perfection which the instruments used for comparing together measures of length have attained, accuracy to that extent may be effected. But the necessity of such an operation for the definitive settlement of this proposition is apparent, from the fact, that the comparisons hitherto made in France, and in England, and in the United States, though all made with all possible care, have terminated in results so different, that it would scarcely be safe to assume either of them as the proportion to be declared by a legislative act.

In the attempt to determine distances of space less than the 200th part of an inch, the experiment is met by obstacles, in the temperature and pressure of the atmosphere, and in the different degrees of their influence upon the matter to be measured. Heat and cold, moist and dry, high and low, affect the metals of which measures are composed with various degrees of dilatation and contraction. Brass, the metal

of which the English standards are formed, being a compound metal, is variously dilatable: and, although tables have been formed of the degrees in which the simple metals are expanded by heat, according to the scale of the thermometer, yet, as those tables, made by different men, do not agree, no perfect reliance can be had upon them. As yet no experiments of admeasurement, made by different persons, at different times, but of the same standards, have exhibited results, approximating within one two-hundredth part of an inch: of a contrary result, the examples are numerous, and so remarkable that they deserve to be noticed more particularly.

In the year 1797, sir George Shuckburg Evelyn measured, with Troughton's microscopic beam compass and scale, all the standards at the exchequer; the scale made by Sisson for Graham in 1742, the parliamentary standards of 1758 by Bird, the scale used by general Roy for the measurement of the base, and several others. The result of his experiment was published in the transactions of the Royal Society of that year. He found that the standard yard of Elizabeth at the exchequer marked 36.015 inches, Bird's parliamentary standard of 1758, 36.00023, and general Roy's scale 36.00036, on the scale of Troughton.

In the year 1818, captain Henry Kater, one of the commissioners of the prince regent, with the same microscope beam compass of Troughton, measured the same scale of general Roy, and found 39.4 inches on the latter to be equal to 39.40144 on the scale of Troughton. The difference between these two results is $\frac{105}{10000}$, or rather more than a hundredth part of an inch. Captain Kater, to account for it, supposes, that when sir George Shuckburg made the comparison, the two scales were not at the same temperature: but sir George Shuckburg, in his own account of his experiments, expressly mentions his leaving together another of the scales with that of Troughton, by which he measured it 24 hours, that they might acquire the same temperature; and marks the state of the thermometer (51.7) when he measured the scale of general Roy. Captain Kater states the thermometer, when he measured it, to have been at 70.

A difference equally striking has happened in the experiments made in France and England, to ascertain the relative proportions of the English foot and of the French metre. The result of numerous experiments, made in France under the direction of the National Institute, or Academy of Sciences, has been to announce the metre to be precisely equal to 39.3824 English inches. The result of captain Kater's experiments, after numerous others under the direction of the Royal Society, is the declaration, that the French metre is equal to 39.3708 English inches. The difference is $\frac{116}{10000}$ of an inch, more than one hundredth part, and as near as possible the same as that of the experiments of captain Kater and of sir George Shuckburg Evelyn, upon the scales of Troughton and of general Roy.

A very interesting account of experiments made in this country by Mr. Hassler, to ascertain the length of the metre, is subjoined to this report, from which the mean length of four standard metres was

found to be 39.38024797 English inches upon a scale of Troughton's, of equal perfection with that of sir George Shuckburg Evelyn.

Again; in the year 1814, the committee of the house of commons resolved, and, in 1815, the house itself enacted, that the length of a pendulum vibrating seconds, in the latitude of London, had been ascertained to be 39.13047 inches of Bird's parliamentary standard yard.

In the year 1818, captain Kater reported, as the result of his experiments, that the length of the pendulum vibrating seconds *in vacuo* at the level of the sea, at the temperature of 62° of Fahrenheit, in latitude 51° 31′ 8″ 4‴ north, (London) was 39.13842 inches of the same Bird's parliamentary standard yard.

The difference is $\frac{795}{10000}$, or a one hundred and twenty-sixth part of an inch.

By assuming a mean average from all these experiments, and the yard of Elizabeth at the exchequer (the standard from which all the long measures of the United States are derived,) as the measure of comparison, we might be warranted in taking 39.38 English as the length of the French platina standard metre, and 39.14 as the length of the pendulum vibrating seconds in the latitude of London. And if the attempt at a minuter decimal fraction than that of the 100th part of an inch in the making of metallic measures, should terminate again in disappointment, it is nevertheless true, that, to obtain accuracy even to that extent, the microscopic beam compasses, and the micrometer marking subdivisions to the 25,000th part of an inch, are essential auxiliaries: for in this, as in all the energies, moral or physical, of man, the pursuit of absolute perfection is the only means of arriving at the nearest approximation to it, attainable by human power.

When the proportion shall be thus ascertained, by a concurrent agreement with France, the act might declare that the foot measure of the United States is to the standard platina metre of France in such proportion that 39.3802 inches are equal to the metre, and that 472.5623 millimetres are equal to the foot. The proportion of the troy and avoirdupois pounds to the kilogramme might be ascertained with equal accuracy, and declared in like manner. A platina metre and kilogramme, being exact duplicates of those in the French national archives, should then be deposited and preserved with the national standards of the United States.

It is not proposed that the standard yard measure of the United States should be made of platina; but that it should be of the same metal as the yard of 1601, at the Exchequer, from which it will be taken. The very extraordinary properties of platina, its unequalled specific gravity, its infusibility, its durability, its powers of resistance against all the ordinary agents of destruction and change, give it advantages and claims to employment as a primary standard for weights and measures, and coins, to which no other substance in nature has equal pretensions. The standard metre and kilogramme of France are of that metal. Should the fortunate period arrive when

the improvement in the moral and political condition of man will admit of the introduction of one universal standard for the use of all mankind, it is hoped and believed, that the platina metre will be that measure. But, as the principle respectfully recommended in this report is that of excluding all innovation or change, for the present, of our existing weights and measures, it is with a view to uniformity that the preference is given, for the choice of a new standard, to the same metal of which that measure consists which has been the standard of our forefathers from the first settlement of the English colonies, and is exactly coeval with them. It is not unimportant that the standards, to be transmitted to the several states of the Union, should be of the same metal as the national standards, of which they shall be copies. The changes of the atmosphere produce different degrees of expansion and contraction upon different metals: and, when a measure of brass or copper is to be taken from a measure of platina, the differences of their expansibility become subjects of calculation, upon data not yet ascertained to entire perfection. The selection of platina for the French kilogramme has been attended with the singular consequence, that the standard of the archives is not of the same *weight* as the standard for use. The latter is of brass; and the copies taken from it for the real purposes of life are of the same weight in the air, but not of the same weight as the platina standard, because that is the weight of the cubic decimetre of distilled water *in vacuo*. Whenever calculations of allowances for atmospheric changes in the different metals are introduced into the comparison of measures, estimates take the place of certainty; and different results proceed from different times, places, or persons. The very immutability of platina, therefore, makes it unsuitable for a practical standard of mutable things. Change, and not stability, is the uniform measure of change. Justice consists in estimating every thing by the law of its nature: and, to illustrate this idea by applying it to moral relations, it may be observed, that, to bring mutable substances to the test of immutable standards, would be like charging disembodied spirits to pass sentence by the laws of their superior nature upon the frailties and infirmities of man.

The plan which is thus, in obedience to the injunction of both houses of Congress, submitted to their consideration, consists of two parts, the principles of which may be stated: 1. To fix the standard, with the partial uniformity of which it is susceptible, for the present, excluding all innovation. 2. To consult with foreign nations, for the future and ultimate establishment of universal and permanent uniformity. An apology is due to Congress for the length, as well as for the numerous imperfections, of this report. Embracing views, both theoretic and historical, essentially different from those which have generally prevailed upon the subject to which it relates, they are presented with the diffidence due from all individual dissent encountering the opinions of revered authority. The resolutions of both houses opened a field of inquiry so comprehensive in its compass, and so abundant in its details, that it has been, notwithstanding the lapse of time since the

resolution of the Senate, as yet but very inadequately explored. It was not deemed justifiable to defer longer the answer to the calls of both houses, even if their conclusion from it should be the propriety rather of further inquiry than of immediate action. In freely avowing the hope that the exalted purpose, first conceived by France, may be improved, perfected, and ultimately adopted by the United States, and by all other nations, equal freedom has been indulged in pointing out the errors and imperfections of that system, which have attended its origin, progress, and present condition. The same liberty has been taken with the theory and history of the English system, with the further attempt to shew that the latter was, in its origin, a system of beauty, of symmetry, and of usefulness, little inferior to that of modern France.

The two parts of the plan submitted are presented distinctly from each other, to the end that either of them, should it separately obtain the concurrence of Congress, may be separately carried into execution. In relation to weights and measures throughout the Union, we possess already so near an approximation to uniformity of law, that little more is required of Congress for fixing the standard than to provide for the uniformity of fact, by procuring and distributing to the executives of the states and territories positive national standards conformable to the law. If there be one conclusion more clear than another, deducible from all the history of mankind, it is the danger of hasty and inconsiderate legislation upon weights and measures. From this conviction, the result of all inquiry is, that, while all the existing systems of metrology are very imperfect, and susceptible of improvements involving in no small degree the virtue and happiness of future ages; while the impression of this truth is profoundly and almost universally felt by the wise and the powerful of the most enlightened nations of the globe; while the spirit of improvement is operating with an ardor, perseverance, and zeal, honorable to the human character, it is yet certain, that, for the successful termination of all these labors, and the final accomplishment of the glorious object, permanent and universal uniformity, legislation is not alone competent. A concurrence of will is indispensable to give efficacy to the precepts of power. All trifling and partial attempts of change in our existing system, it is hoped, will be steadily discountenanced and rejected by Congress; not only as unworthy of the high and solemn importance of the subject, but as impracticable to the purpose of uniformity, and as inevitably tending to the reverse, to increased diversity, to inextricable confusion. *Uniformity* of weights and measures, permanent, universal uniformity, adapted to the nature of things, to the physical organization and to the moral improvement of man, would be a blessing of such transcendent magnitude, that, if there existed upon earth a combination of power and will, adequate to accomplish the result by the energy of a single act, the being who should exercise it would be among the greatest of benefactors of the human race. But this stage of human perfectibility is yet far remote. The glory of the first attempt belongs to

France. France first surveyed the subject of weights and measures in all its extent and all its compass. France first beheld it as involving the interests, the comforts, and the morals, of all nations and of all after ages. In forming her system, she acted as the representative of the whole human race, present and to come. She has established it by law within her own territories; and she has offered it as a benefaction to the acceptance of all other nations. That it is worthy of their acceptance, is believed to be beyond a question. But *opinion* is the queen of the world; and the final prevalence of this system beyond the boundaries of France's power must await the time when the example of its benefits, long and practically enjoyed, shall acquire that ascendency over the opinions of other nations which gives motion to the springs and direction to the wheels of power.

Respectfully submitted.

JOHN QUINCY ADAMS.

DEPARTMENT OF STATE, *February* 22, 1821.

APPENDIX.

A 1.

With a view to ascertain the existing varieties of fact in the weights and measures used at the several custom houses of the United States, and thereby the state of the standards in the several states, the following circular letter was, at the request of the Secretary of State, addressed, by the Register of the Treasury, to the collectors of the customs throughout the Union:

[CIRCULAR.]

TREASURY DEPARTMENT,
Register's Office, November 15, 1819.

SIR: I am requested by the Secretary of State to ask the favor of your early information to that department, relative to the standard of weights and measures, used at the custom house in the collection of the duties of the United States; and to observe, that it will be particularly acceptable to be informed, whether, in dry measure, any other than the Winchester bushel and its parts, is used; and the capacity thereof, that is, its diameter at the top and bottom, and its depth in inches, and tenths of inches. In liquid measure, whether wine or beer measures are respectively used for wines and beer, or, whether confined to wine measure, both for beer and wine. In respect to weights—whether the troy weight is at all used, and whether Dearborn's patent balance is altogether adhered to, in collecting the duties on articles paying duty by the pound or hundred weight.

I am, &c.

P. S. Be so good as to state the number of grains by your troy weight, which your avoirdupois pound weighs.

The following table is the result of the answers received from the collectors. As the cubic foot, or 1728 cubical inches of spring water, at the temperature of 56 degrees of the thermometer, weighs 1,000 ounces avoirdupois, the Winchester bushel of 2150.42 inches contains 77 lb. 12 oz. 7¼ drams of the same water, and the half bushel 38 lb. 14 oz. 3$\frac{5}{8}$ drams. The returns will shew how nearly the actual weights and measures correspond with those proportions. It will not be expected that experiments made at the custom house with scales

adapted to heavy weights, in constant use, and with such water as was nearest at hand, should be marked with philosophical precision, or very minute accuracy. But it is evident they were generally made with great care, and, in several instances, repeated with various kinds of water. From the experiments of sir George Shuckburg Evelyn, it appears that the specific gravity of *distilled* water, at the temperature of 62, is 252½ grains troy to a cubical inch; and of that water the bushel should contain 77 lb. 9 oz. 1½ drams, and the half bushel 38 lb. 12 oz. 8¾ drams. Mr. Pollock found the specific gravity of the pump water at Boston to be 253.6042 grains troy to the cubic inch, and of that water the statute Winchester bushel should contain 77 lb. 14 oz. 8½ drams, and the half bushel 38 lb. 15 oz. 4¼ drams. From 38 lb. 12 oz. to 39 lb. may be, therefore, considered as the range within which the different kinds of fresh water should fill the correct standard copper or brass half bushel.

In several of the returns it is apparent that the weight certified includes that of the wooden vessel which held the water. By the experiment of the late venerable William Ellery, collector at Newport, it appears that of two half bushels of the same dimensions, one of copper and the other of wood, the former contained 1½ ounces more than the latter, and both of them half an ounce more of spring than of rain water: and by experiments of G. Davis, inspector at New Orleans, from whom a very interesting report was received, it appears, that, by weighing the wooden half bushel before it had been filled, and after it was emptied of Mississippi river water, there was a difference of nearly 15 ounces, to be accounted for partly by the absorption of the water into the wood, and partly by the adhesion of it to the sides and bottom of the vessel.

By the testimony of Mr. John Warner, a brass founder in London, much employed in making for country corporations brass standard weights and measures, duplicates of those in the exchequer, given before the committee of the house of commons in the year 1814, it was shewn that from the extreme difficulty and expense of turning a bushel measure truly cylindrical, the practice of the trade is, notwithstanding the act of parliament, to pay no attention to the dimensions of the measures which they make, but to rely entirely upon the trials by the weight of water which they contain. From all the admeasurements which have been made of the English standards, it is apparent that neither the weight of water which a bushel or half bushel may be found to hold, nor the direct measurement by the depth and diameters of the vessel, can be relied upon by itself to ascertain its exact capacity; and even when one of these tests is applied as a check upon the other, the result may differ to the extent of four or five inches upon a half bushel. The corn gallons at the exchequer, which in 1688 were found by a skilful artist to be of 272 cubic inches, in 1758 were, when remeasured by order of the committee of the house of commons, returned as of 271 or less, and one of them tried in April, 1819, by sir George Clerk and Dr. Wollaston, ap-

peared by the weight of water which it held, to be only of 270.4 inches.

If this apparent diminution should be attributed to the decay of the vessel in the lapse of time, that will not account for the opposite result of the two experiments upon the bushel, which, by direct measurement in 1758, was found to be of 2124 cubical inches, and in 1819, by the weight of water it contained, was of 2128.9 inches. The statute Winchester bushel is a cylinder 18½ inches in diameter and eight inches deep: a difference of $\frac{1}{100}$ of an inch either in the depth or diameter increases or diminishes the contents of the vessel nearly three cubical inches. Mathematical instruments are now constructed by which the division of $\frac{1}{1000}$ part of an inch may be discerned; but such refinement of art cannot be applied to the making of vessels of the size of a bushel, or its half. In all such vessels inequalities in the depth, diameter, or circumference, are unavoidable, producing differences in their capacity of more than five cubical inches; the test, therefore, by the weight of water they will hold, is more effectual for accuracy than that of measurement; its results, however, depend upon the correctness of the scales and weights as well as upon the care and attention with which the experiment is made.

As the patent scales of Dearborn are used in most of the custom houses throughout the Union, few of them possess the avoirdupois heavy weights. The correctness and convenience of the patent scales are generally attested by the collectors, who have them in use, and may be relied upon with all the confidence of which any steelyard can be susceptible.

The beer measure and the troy weight are seldom used except in the principal and most populous ports. Of forty single avoirdupois pounds the average weight in troy grains was 6998. In all the principal ports they were exact, within one grain, with the exception of New York, where the custom house pound was five or six grains over weight: but where that of the city was exact.

eights

NO.	DAT	EL OR HAL	WEIGHT CONTA POIS.		REMARKS.
		c.	lbs.	oz.	
1	Dec.	2	37	1	er measure.
2		3	38		ditto
3		1	42	3	r intended. *This must include the
4	Nov.				
5	Dec.				
6	Jan.				
7	Dec.				
8					
9					
10					
11					

23 24

A 3.

Note on the weights and measures of capacity in the District of Columbia.

By the constitutional law of the District, the standard weights and measures of Alexandria are derived from Virginia, while those of Washington city and Georgetown are from the standard of Maryland. The law, in both states, as has been shewn, is, and for more than one hundred and fifty years has been, the same, namely: the act of parliament of 1496, for the statute book. The Winchester measure, avoirdupois weights, and the Exchequer standards for practice. The avoirdupois pound of Alexandria is one of the most defective in the Union, being 50 grains troy, or more than two pennyweights, short of 7,000 grains. The half bushel is also too small; its primitive standard having been, not the Winchester bushel, but one of the oldest Exchequer standards, made under the statute of 1266. It is 16 cubical inches less than the parliamentary Winchester half bushel.

The Georgetown peck is in exact proportion to the Winchester bushel. Its pound avoirdupois is too light by 30 troy grains.

The new measures at Washington lately obtained at Baltimore, are a half bushel, peck, and half peck, of copper, lined with tin, cylindrical in form; the half bushel and peck with a hole and cock in the centre of the bottom, to let off the water.

The half bushel appears to have been intended to be of 13 inches diameter, and eight inches depth, which would have given 1064 inches of cubical contents. This would correspond almost exactly with *one* standard bushel at the English Exchequer, which was tried in April, 1819, by weight of water, and found to hold 2128.9 inches; but, of the new Washington half bushel, neither the depth nor the diameter are uniform. They vary to the extent of a quarter of an inch, in different parts of the vessel. The bottom is not perfectly flat, but bulges a little inward at the centre; nor is the edge of the top circumference perfectly level; so that, while on one side it overflows, it is left not entirely full on the other. Its mean diameter is, with sufficient exactness, 13 inches, and its depth 7.9, which gives 1058.6 inches for its cubical contents. This is 16.61 inches less than it ought to be.

It was found to contain 46lb. 5oz. 13 pwt. or 267,672 grains, troy weight, of mixed rain, river, and pump water, with Fahrenheit's thermometer at 42°, and then overflowed at one side of the border, while on the opposite side there was about $\frac{1}{10}$ of an inch yet to fill. This also gives 1058.6 inches as its capacity. It contained of wheat, in stricken measure, 31lb. 4oz. 5¼dr. avoirdupois, of which the old half bushel had contained 32lb.

The peck has in its dimensions the same irregularities, though in less degree than the half bushel. Its diameter is ten inches; its depth from 6.7 to 7, with a bottom bulging inward. The mean depth is about 6.9, and its contents, by that measure, are 541 inches.

It holds 23lb. 8oz. 15 pwt. or 136,680 grains troy of water, givi
541 inches, being 3.4 inches more than the standard measure.

The half peck is 7.5 diameter, and 6.25 inches deep, which
276.25 inches for its contents. It holds 12lb. 1oz. 4pwt. or
grains troy of water, or 276.5 inches, being 8 inches more th
standard measure.

Although each of these measures, separately taken, is inco
they are so far just in the aggregate, that the half bushel an
peck, with the half peck twice filled, would yield, with perfect
ness, a bushel of the legal standard of 2150.42 cubic inches.

The half bushel, peck, and half peck, which had been u
standards at Washington until the last autumn, were much mo
act, both in their proportions to one another, and in their conf
to the Winchester bushel, than those now substituted in their
The one pound avoirdupois had been of 6,962 grains, or 38 gra
light. The weights now are

1 pound	7,010 grains troy		10	grains too much.
2	14,024	-	24	
4	28,062	-	62	

The wine gallon is of 231 solid inches, and the smaller me
proportional to it. There are no standards either of troy wei
beer measure.

C.

Note, on the proportional value of the pound sterling and the dollar.

The whole amount of the commercial intercourse between two countries, within a given time, say a year, may be considered as the barter of an equivalent portion of their respective productions. The balance of trade is the excess of exportation from the one, and of importation to the other, beyond the equivalent value of specific articles of the trade.

In the practice of commerce, all the articles of the trade are valued in the established currencies of both countries; each article first in the country from which it is exported, and secondly in that to which it is imported. The balance of the trade must be discharged by some article of equal agreed value to both parties. There are two precious metals *gold* and *silver*, which, by the common consent of all commercial nations, are such articles; and there is no other.

These two metals constitute also the principal basis of the money, or specie currency of all commercial countries; and as they are variously modified by weight and purity in the *coins* of different countries, a common standard must be resorted to, by which the relative value of the coins of the two countries may be ascertained and settled in their commercial dealings with each other.

Some one specific coin or money of account on each side is assumed between which a proportional value is established as the conventional par of exchange. Thus, between the United States and Great Britain, the dollar of the former and the pound sterling of the latter, with their respective subdivisions, are assumed as the standards of comparative value, and the conventional proportion of value between them, commonly used in their commercial intercourse, and sanctioned by several acts of Congress, has settled the *par of exchange* at one pound sterling for four dollars and forty-four cents in the United States, while, in Great Britain, it is at four shillings and six pence for the dollar.

But observe:

First, That here are already two different bases of exchange—the American, which assumes the pound sterling for the unit, and estimates it in the proportional parts of the dollar, and the English, which assumes the dollar for the unit, and values it in the proportional parts of the pound sterling. This would have been immaterial, if the calculations upon which the exchange was originally settled, had been correct. But the results of the two estimates are not the same. If the dollar is worth four shillings and six pence, the pound sterling is equivalent to four dollars forty-four cents four milles, and an endless fraction of four decimal parts. If the pound sterling is worth four dollars and forty-four cents, four shillings and six pence, or fifty-four pence, are equal only to ninety-nine cents and nine milles. The difference is of one mille in a dollar, or one thousand dollars in a million.

Secondly, That the elements of this exchange, the two objects of comparative estimated value, are not homogeneous. The dollar of the United States is at once a money of account, and a specific silver coin, while the pound sterling, at the time when the exchange was settled, was only a money of account, having no coined representative in one piece of either of the precious metals. Since that time, indeed, the pound sterling has found a spurious representative in paper notes of the Bank of England, and of late a more truly sterling representative in the piece of gold which is called a *sovereign*. So that the pound sterling in England is an indefinite term, represented by three different materials, that is, in gold, by the sovereign, or by the guinea, with deduction of a shilling; in silver, by twenty shillings, or four crowns, or in paper, by a bank note.

In the United States, their coins, both of gold and silver, are legal tenders for payments to any amount; but in England silver coin is a legal tender for payments only to an amount not exceeding forty shillings, and by the restrictions of cash payments by the bank, the only actual currency, the only material in which an American merchant having a debt due to him in England can obtain payment is Bank of England paper. So that at this time the materials of *exchange* between the United States and England are, on the side of the United States gold or silver, on the side of Great Britain, bank paper.

Suppose an American merchant has a debt due to him in England, which is remitted to him in gold bullion, or coins of the English standard, say £10,000. He receives of pure gold 196 pounds, 2 ounces, 3 pennyweights, 22 grains, for which, when coined at the mint of the United states, he receives 45,657 dollars 20 cents. The pound sterling, therefore, yields him 4 dollars 56.572 cents. And such is the value of the pound sterling, if the par of exchange be estimated in gold, according to the standard of purity common to both countries.

If the payment should be made in silver bullion, at 66 shillings the pound troy weight, according to the present English standard of silver coinage, he would receive only 43,489 dollars and 43 cents, and the pound sterling would only nett him 4 dollars 34.8943 cents.

The pound sterling, therefore, estimated in gold,

is worth - - - - - -	$4 56.5720
In silver	4 34.8943
Making a difference of	21.6777
Half of which	10.8388

Added to $4 34.8943
And deducted from 4 56.5720
Makes what is called the medium par of exchange, $4 45.7331.

It is contended by some writers upon the commercial branch of political economy, that this medium is the only equitable par of exchange; but this is believed to be an error. It is, perhaps, of as little im-

portance what the conventional par of exchange is, as whether a piece of linen or of broadcloth should be measured by a yard or an ell. The actual exchange is never regulated by the medium or any other par, but by the relative value of bullion in the two countries at the time of the transaction; by the relative proportions between the value of gold and silver established in their respective laws; by the prohibitions of exportation of bullion sometimes existing, and the duties upon its exportation levied at others; by the laws, which, in some countries, make gold alone, in others silver alone, in others again both silver and gold, legal tenders for the payment of debts; by the existing condition of the commerce of the two countries, and of each of them with all the rest of the world; and last, and most of all, by the substitution of paper currency instead of the precious metals, in one or both of the countries, and the existing depreciation of the paper.

But the law of the United States, first enacted on the 31st July, 1789, sect. 18, prescribing that, for the payment of duties, the pound sterling of Great Britain shall be estimated at 4 dollars 44 cents, [U. S. Laws, Bioren's edition, vol. 2, page 22] is not so indifferent. This provision of the law has been continued in both the collection laws, since enacted, and, by that of 2d March 1799, [3 U. S. Laws, sect. 61, page 193] is still in force.

By section 30 of the act of Congress of 31st July, 1789, the duties were made receivable in gold and silver coin *only;* the gold coins of France, England, Spain, and Portugal, and all other gold of equal fineness, at 89 cents per pennyweight; the Mexican dollar at 100 cents; the crowns of France and England at one dollar and 11 cents each, and all silver coins of equal fineness at one dollar and eleven cents per ounce.

As this was one of the first experiments of legislation under the present constitution of the United States, it is unnecessary to make upon it many of the remarks which suggest themselves; but, with regard to those of its provisions which are still in force, let us observe,

That, on the 31st July, 1789, there had been no suspension of specie payments by the Bank of England. The pound sterling, if paid in gold, yielded 113.0014 grains of pure metal. If paid in silver, 1718.72 grains of pure silver.

That the dollars and cents in which this pound sterling was estimated by the act of 31st July, 1789, were not the dollars and cents of the standard now established, but of the standard established by the resolution of the old Congress of 8th August, 1786, and their ordinance of 16th October of the same year, [1 U. S. Laws, page 646] by which the dollar was to contain 375.64 grains of pure silver, and the eagle 246.268 grains of pure gold.

This dollar had been assumed as the money unit of the United States, upon a report from the Board of Treasury, dated 8th April, 1786, from which report it appears that the board intended and believed that it would be of equal value with the Spanish dollar, then

generally current in the United States at four shillings and six pence sterling; excepting an allowance which they proposed to make for the waste and expense of coinage of silver. They made a similar allowance of ½ per cent. upon the coinage of gold.

The ordinance assumed, for the standard of purity, both of gold and silver coins, eleven parts fine, and one part alloy. This standard was, with respect to gold, the same as that of England. But the English standard of silver coins is eleven ounces and two pennyweights of fine, to eighteen pennyweights of alloy; so that, while the English pound troy weight, of coined silver, contained 5,328 grains of pure metal, that of the United States, by the standard then established, contained only 5,280 grains.

In the elaborate calculations of the report, which were adopted as the basis of the ordinance, no allowance whatever is made for this difference of 48 grains in the pound troy, between the English standard and that prescribed for the United States. It expressly states that the English mint price of standard silver is sixty-two shillings sterling, and professes to prepare a dollar of *equal* value, excepting an allowance of two per cent. for waste and coinage. It then draws a proportion without reference to the difference between the two standards, and computes the sixty-two shillings of the English standard pound troy, as if they contained only 5,280, while they really contained 5,328 grains. The object of this omission apparently was, together with the two per cent allowance for waste and coinage, to preserve what the report states to have been the proportional value established by custom in the United States, between coined gold and silver of fifteen and six tenths for one, while their proportional value in the English coins was 15.21 for one.

The ordinance for the establishment of the mint, and for regulating the value and alloy of coin, therefore prescribed that bullion, or foreign coin, should be received there as follows:

Uncoined gold, or foreign gold coin, eleven parts fine, and one part alloy - - -	1 lb. troy weight	$209 77
Silver, 11 parts fine and 1 part alloy	1 lb. - -	13 77 7

And so in proportion to the fine gold and silver in any other foreign coin, or bullion. And the dollar to be issued from the mint of the United States was settled at 375.64 grains of pure silver, because the report of the Board of Treasury had first supposed, contrary to that fact, that there were only 5,280 grains of pure silver in sixty-two shillings of English silver coin, consequently, only 383.225 grains, instead of 387, in four shillings and six pence, and then provided an allowance of two per cent. for waste and coinage. By these operations it seems to have been thought that the standard dollar of the United States would be of equal value with the Spanish dollar, then current in this country, and with four shillings and sixpence of English silver coin. Thus, while, by the 18th section of the act of 31st July, 1789, the pound sterling was estimated, for the payment of duties, at four dollars and forty-four cents, by the 30th sec-

tion of the same act, every pound sterling paid in guineas, or other gold, was received for $4.57.143, and if paid in English crowns, was received for $4.57.5445.

That the calculations upon which the rated value of gold and silver coins was fixed were loose and inaccurate, is apparent. The gold coins of France and Spain were rated as of the same standard of purity with those of England and Portugal; the crown of France as of equal value with the English crown; both without reference to their weight, and both as equivalent to an ounce of silver of the same fineness. It was well known and intended that all these coins should be rated at more than their intrinsic value, compared with the pound sterling, as estimated at 4 dollars 44 cents, or with the standards of gold and silver coins of the United States then established. The differences might be considered in the nature of a discount for prompt payment of the duties. And, as the merchants of the United States were deeply indebted in England, inasmuch as the pound sterling was undervalued, the difference was clear profit to them in discharging the balances due to their English creditors.

The act of 31st July, 1789, was, at the succeeding session of Congress, repealed, and that of 4th August, 1790, substituted in its stead, [2 U. S. Laws, p. 131.] The 40th and 56th sections of this act correspond with the 18th and 30th sections of that of 1789. The pound sterling is again rated at $4.44, and the coins as before.

But on the 2d April, 1792, passed the act establishing a mint and regulating the coins of the United States: by which the whole system established by the ordinance of 1786 was abandoned, and different principles and different standards were assumed. The standard of gold coins was left at 11 parts fine to one of alloy; but instead of 246.268 grains of pure gold, the eagle was required to contain 247½ grains. The silver standard was altered from 11 parts in 12 of fine, to 1485 parts in 1664. Instead of 375.64 grains of pure silver, the dollar was required to contain only $371\frac{4}{16}$ grains, and its weight, instead of 409 grains, was fixed at 416. The proportional value between gold and silver was fixed by the same law, at fifteen for one; and instead of the allowance of two per cent. for waste and coinage, the principle was adopted of placing gold and silver coined at the same rate as uncoined, and of delivering at the mint coined, the same weight of pure metal as should be brought to it in bullion or foreign coin.

By this operation the value of the silver dollar as compared with British silver coin was reduced from 52.4539 pence sterling to 51.8409 pence; and the pound sterling, from $4.57.5445, was raised to be worth $4.62.955; and, at the same time, the value of the dollar estimated in the English gold coin was raised from 52.304 to 52.5656 pence, and the pound sterling was reduced in the gold coin of the United States from $4.57.143 to $4.56.572.

The act establishing the mint had, however, no direct reference to the value or the rates of foreign coins. But on the 9th February, 1793, passed the act regulating foreign coins, and for other purposes,

[2 U. S. Laws, p. 328,] which made the gold coins of Great Britain and Portugal of their then standard a legal tender for the payment of all debts and demands at the rate of 100 cents for every 27 grains of their actual weight. The gold coins of France and Spain at the rate of 100 cents for every 27⅔ grains: Spanish dollars weighing not less than 415 grains at 100 cents: French crowns weighing not less than 459 grains, 110 cents each. The 55th [56th] section of the act of August, 1790, was repealed, but the 40th section was left in force, and the pound sterling was still receivable for $4.44. It was, however, thenceforward, whether paid in the gold coins of England or of the United States, worth $4.56.572.

A new collection law was enacted on the 2d March, 1799, which is still in force. In the 61st section of which [3 U. S. Laws, p. 193,] the pound sterling of Great Britain is again rated at 4 dollars 44 cents; while, in the 74th section, the gold coins of Great Britain of the standard prior to 1792, are receivable at the rate of 100 cents for every 27 grains. But a proviso is added to the 61st section, that the President may establish regulations for estimating duties on goods, invoiced in a depreciated currency; and a proviso to the 74th, that no foreign coins but such as are a lawful tender, or made receivable by proclamation of the President, shall be received.

In the act of 9th February, 1793, the English crown was not rated at all, and from that time no English silver coin has been a legal tender, nor consequently receivable in payment of duties.

The act of 10th April, 1806, regulating the currency of foreign coins in the United States, continued the rates established by the 74th section of the act of 2d March, 1799; and it required of the Secretary of the Treasury to cause assays to be made every year, and report them to Congress, of the foreign coins made tenders by law, and circulating in the United States.

29th April, 1816, [6 U. S. Laws, p. 117.] Act regulating the currency within the United States of the gold coins of Great Britain, France, Portugal and Spain, the crowns of France, and five franc pieces.

Gold coins of Great Britain and Portugal 27 grs. = 100 cts. or 88⅔ cts. per dwt.

France	. .	27½	= do.	87½
Spain	. .	28⅔	=	84

Crowns of France, weighing 449 grs. 110 cents, or $1.17 per oz.
Five franc pieces 386 grs. 93.3 1.16 do.

3d March, 1819. Act to continue in force the above act.

After 1st November, 1819, foreign gold coins cease to be a tender. Rest of the act to be in force till 29th April, 1821.

The act of 2d April, 1792, establishing the mint, was founded, in its principal features, upon the report of the Secretary of the Treasury, Hamilton. It is remarkable that in this report all notice of the ordinance of Congress of 16th October, 1786, is omitted.

It says, "a prerequisite to determining with propriety what ought "to be the money unit of the United States, is to endeavor to form

"as accurate an idea as the nature of the case will admit of, what "it actually is. The pound, though of various value, is the unit of "the money of account of all the states. But it is not equally easy "to pronounce what is to be considered as the unit in the coins. "*There being no formal regulation on the point* (the resolutions of Con-"gress of the 6th July, 1785, and 8th August, 1786, having never "yet been carried into operation) it can only be inferred from usage "or practice."

Now the ordinance of 16th October, 1786, was a formal regulation, which recognized the principles, in regard to the unit of coins, of the resolutions of 6th July, 1785, and 8th August, 1786; and the Congress, under the new constitution, had, by the two successive collection laws of 31st July, 1789, and 4th August, 1790, not only rated the foreign moneys of account, but foreign coins, by the standard of dollars and cents, established in the resolution of 8th August, 1786. Millions of dollars had been received in revenue, under those laws, in foreign coins estimated in those dollars and cents. A pamphlet was published by Mr. Boardley at Philadelphia, in 1789: in which he shews that the real value of the dollar, in the first collection law, was 52.46 pence sterling, and not 54, and adds: "I do not consider "whether this valuation accords with a late declaration that twenty "shillings sterling shall be estimated at the value of 4 dollars and 44 "cents of the present dollar; but I recommend it to the considera-"tion of others."

In the Gazette of the United States, of 24th October, 1789, is an essay entitled "A few thoughts concerning a proper money of ac-"count, by a gentleman of Virginia," in which it is fully shewn that the valuation of the pound sterling, "as it stands rated by Congress "at 4 dollars 44 cents," was inconsistent with the pennyweight of gold rated at 89 cents; that the pound sterling should be rated at 4 dollars $57\frac{89}{625}$ cents, or the pennyweight of foreign gold coin at $86\frac{19}{36}$ cents, instead of 89, which it states to be greatly to the injury of the revenue.

The alterations from the system established by the old Congress, recommended in Mr. Hamilton's report, and adopted by the law for establishing the mint, were, a dollar of $371\frac{1}{4}$ grains pure silver, instead of 375.64 grains; an eagle of $247\frac{1}{2}$ grains pure gold, instead of 246.268; 15 for 1 proportional value of silver and gold, instead of 15.6 for 1. Gratuitous coinage, instead of a duty of two per cent. for the bullion sent to the mint to be coined.

Mr. Hamilton proposed to leave the standard of purity of the silver coin at 11 parts in 12 pure, as it had been established by the old Congress. But, in this respect, the law departed from the principles of the Secretary. It took the weight as well as the pure contents of the Spanish dollar, then in circulation, for a model; not indeed its legal weight and purity, which would have been 420 grains, at $10\frac{3}{4}$ parts in 12 pure silver; but its actual weight and purity, with the allowances for remedy, and ascertained by the average from a considerable number of the Spanish dollars, of the coinage since 1772, which

were then in actual circulation. The result gave us a dollar of 416 grains, and containing 371¼ grains of pure silver.

In the coins of the United States there is no allowance for what is called the remedy of weight; but assays of all coins issued from the mint are made, and if any of them are found inferior to the standard prescribed, to the amount of more than $\frac{1}{144}$ part, the officers of the mint, by whose fault the deficiency has arisen, are to be dismissed. This provision was adopted from what was stated in Mr. Hamilton's report to be the practice of the mint in England.

By the acts of incorporation of the Banks of the United States, their bills, *payable on demand*, are made receivable in all payments to the United States, unless otherwise directed by Congress.

By the acts of 31st July, 1789, and 4th August, 1790, the gold coins of Great Britain were rated at 89 cents the pennyweight. By the act of 9th February, 1793, passed after the change of the standard of our domestic coins, British gold coins were rated at 27 grains to the dollar, equivalent to 88$\frac{8}{9}$ cents the pennyweight, at which they stand to this day.

In the year 1797 the British parliament passed an act restricting the Bank of England from paying their own notes in specie, a restriction which has been continued to this day, with certain exceptions, by recent acts of parliament. The pound sterling, therefore, in all English invoices and accounts, is now neither gold nor silver, but bank paper. This paper has been at times so depreciated that Spanish dollars have been issued by the bank itself, successively, at five shillings and five shillings and sixpence the dollar, and they have passed in common circulation at six shillings.

In the year 1816 there was a coinage of silver at the mint, in which the pound troy weight of standard silver was coined into 66 shillings, instead of 62 shillings, which had been the standard before.

And an act of parliament of 2d July, 1819, confirms the restrictions upon cash payments by the bank, until the first day of May, 1823, with the following exceptions.

1. That, between 1st February and 1st October, 1820, any person tendering to the bank its notes payable on demand, to an amount not less than the price or value of sixty ounces of gold, at the rate of four pounds one shilling per ounce, shall receive payment in gold, of the lawful standard at that rate of £4 1*s.* per ounce.

2. That, from 1st October, 1820 to 1st May, 1821, such payments shall be made in gold, calculated after the rate of £3 19*s.* 6*d.* per ounce.

3. And that, from the 1st of May, 1821, to the 1st of May, 1823, they shall be make in gold, calculated after the rate of £3 17*s.* 10½*d.* per ounce. All these payments to be made, at the option of the bank, in ingots or bars, of the weight of sixty ounces each, and not otherwise.

Throughout this whole canto of mutability, the pound sterling of Great Britain, from the 31st July, 1789, to this day, has been rated by the laws of the United States, at 4 dollars and 44 cents.

There has probably been no time since the establishment of the mint of the United States, nor since the first establishment of the dollar as the unit of account in the moneys of the United States, when this has been the intrinsic value of the pound sterling, whether computed in gold, silver, or bank paper.

A proclamation of Queen Anne, issued in the year 1704, declared that the Spanish, Seville, and Mexican, *pieces of eight*, (as dollars were then called) had, upon assays made at the mint, been found to weigh seventeen pennyweights and a half (420 grains,) and to be of the value of four shillings and sixpence sterling, from which the inference is conclusive that they contained of pure silver 387 grains, and the proclamation accordingly prohibited their passing, or being received, for more than *six* shillings each, in the currency of any of the British colonies or plantations. An act of parliament in 1707, corroborated by penalties the prohibition contained in the proclamation. Six shillings for the Spanish dollar became thenceforth the standard of lawful money in the colonies, although the currencies of some of them afterwards departed from it. In 1717 Sir Isaac Newton, being master of the mint, again made assays of the Spanish dollars, and found them still to contain 387 grains. From this standard they successively fell off in 1731, in 1761, and in 1772; since which their average weight and purity has been that at which the dollar of the United States is fixed.

The dollar being thus of the intrinsic value of four shillings and six pence sterling, the pound sterling was of course equivalent to 4 and $\frac{4}{9}$ of the dollar. This was the par of exchange, computed in the *silver coins* of the two countries, for even then if the computation had been made between their gold coins, the result would have been different.

Thus, while the laws of the United States, in establishing their mint, and the unit of their currency, have assumed for their standard the Spanish dollar of 1772, in the calculations of their revenue and their estimate of the English pound sterling, they have adopted the Spanish dollar of 1704.

But when, in 1704, the value of the Mexican dollar was fixed at four shillings and six pence, it was because it contained 387 grains of pure silver, the same quantity which was also contained in four shillings and six pence of English coined silver. At this time, four shillings and six pence sterling of English silver coin, contain only 363¼ grains of pure silver, and the dollar of the United States contains 371¼ grains.

The following statements show the relative present value of the dollar and pound sterling in the gold and silver coins of both countries, in gold bullion, as payable by the Bank of England, and in English bank paper at its current value in 1815.

1. *Gold.*

One pound troy weight of standard gold in England contains 5,280 grains of pure gold. It is coined into £46 14*s.* 6*d.* or 11,214 pence.

Then 11,214 : 5,280 :: 240 : 113.0014 grains of pure gold in a pound sterling.

In the United States 24.75 grains of pure gold is coined into a dollar, or 247.5 grains to an eagle.

Then 24.75 : 1 :: 113.0014 : 4.56572 dollars, cents, &c. to £1.

Thus the pound sterling in gold is worth $4 56.572.

And as 5,280 : 11,214 :: 24.75 : 52.5656.

Dollar in English gold 4*s.* 4.5656.

Pound sterling in gold $4 56.572.

2. *Silver.*

One pound troy weight of standard silver in England contains 5,328 grains of pure silver, and is coined into 66 shillings, or 792 pence.

The dollar of the United States contains 371.25 grains of pure silver.

Then, 5,328 : 792 :: 371.25 : 55.1858.

Dollar in English silver 4*s.* 7.1858.

792 : 5328 :: 240 : 1,614.545 grains pure silver in a pound.

371.25 : 1,614,545 :: 1 : 4.348943.

Pound sterling in silver $4 34.8943.

Medium par dollar, 4*s.* 5.8757 pence.

£ stg. in gold $4 56.5720 —
in silver 4 34.8943 + 10.8388 = $4 45.7331 med. par £ stg.

3.

Value of the pound sterling and dollar in gold and silver coins, in gold bullion, and in English bank paper.

	Pence stg.
Value of United States dollar in English silver coin at 66 shillings per lb. troy weight - - -	55.1858
In English gold coin at £3 17*s.* 10½*d.* per oz. -	52.5656
In English bank notes in 1815, - - -	72.
In gold bullion at £4 1*s.* per ounce, - - -	54.675

	D.	*Cents.*
English pound sterling, in silver coin, worth in the United States, silver dollars, - - -	4	34.8943
Gold coin at £3 17*s.* 10½*d.* per oz. in United States gold,	4	56.5720
In English bank notes, 1815, - - -	3	33.3333
In gold bullion at £4 1*s.* per ounce, - -	4	38.9574
In ditto at 4, - - - -	4	44.4444

D 1.

Mr. Hassler to the Secretary of State,

NEWARK, N. J. 16*th October*, 1819.

MOST HONORED SIR: When I had the honor to see you relative to my appointment for the boundary line, the conversation falling upon French and English standards of weights and measures, I mentioned to you that I had brought a complete set of them with the instruments for the survey of the coast, of which I handed you a catalogue.

Mentioning at the same time that I had made comparisons of those standards of length-measures, and some others which I had besides, (having not had time to extend it to the standards of weights.)

Since then, I could not occupy myself with this subject, until lately in the course of the papers upon the scientific part of the survey of the coast, which I prepared for publication.

I have, therefore, now the pleasure to fulfil my promise, and your desire of that time, by forwarding you herewith an extract of this paper, containing the part which may interest you, with the necessary details to convey the conviction of accuracy necessary in such subjects to inspire confidence in the results.

You will observe that these are not so full and extensive as I intended them to be. I am sorry that the circumstances which befel this, in a national point of view, so honorable and useful work, have also in this part frustrated the aim of my exertions.

I believe however, what has been obtained will be sufficient for your purpose of a report to Congress upon this subject.

If you should wish any thing more that I could be able to do, I will do it with pleasure.

You may probably conclude with me from the comparisons of Captain Kater and other circumstances, that a platinum *meter copy* will yet remain much inferior in real scientific value, to the iron original of the committee which I had in trial, and that the large expansion reduction necessary in the comparison by the English way of giving the ratio of the standard, may introduce some uncertainty by the less accurately known expansion of platinum. I have, besides, repeatedly, and, also, in these comparisons, had some reasons to suspect that copies are most generally shorter than the original in standards cut to a determined length.

I have the honor to be,
With perfect respect and esteem,
Most honored, Sir,
Your most obedient humble servant,
F. R. HASSLER.

The honorable JOHN QUINCY ADAMS,
Secretary of State to the United States,
Washington City.

D 2.

Comparisons of French and English standard length measures made in March, 1817, *by F. R. Hassler.*

The two length measures which have been the most scientifically ascertained and compared, are the French and the English.

They are essentially different in their principles, and of different metals, which circumstance has always presented difficulties in their comparison.

The English standard is *a brass scale of undetermined length,* divided into inches and tenths of inches. They are of different ages and accuracy, and successively perfectioned by various artists, by making new scales of any convenient length from the mean of distances taken upon the old scales. Sir George Shuckburgh Evelyn's account of comparisons of a number of them may be consulted for the nearer details, (Philosoph. Trans. of London.)

The French standard is *a certain determined unit of length in iron,* given by a bar cut off to the given length, either a toise, or a meter. The accounts of their comparison, ratio, and the determination of the latter from nature, is contained in detail in the Base du Systeme Metrique.

Whoever has attempted to copy an absolute length, or to multiply it with accuracy, to form a long standard from a short one, will soon have discovered that great care is needed in the choice of means. Beam-compasses and similar means are fully unsatisfactory for both. This conviction, and the perusal of the different modes of proceeding used in Europe in the works of this nature, decided me to adopt for the unit measure of the bars, to be used in the base-measuring apparatus, the mechanical combination of four iron bars, of two metres length each, (of which account is given in another part of the papers,) an additional deciding reason for this was, that I had to my disposition for this use one of the metres standarded by the committee of weights and measures in Paris in 1799, which is therefore equally authentic with the one in Paris itself, and places the accuracy of my unit measure above all possible doubt, while of any other measure I could only obtain the copy of a copy. The comparison of this with the other copies mentioned in this paper, and my bars, rendering it besides comparable to any standard by mere numerical calculation.

The comparisons to be related here were made in February and March, 1817, and intended to be repeated before the measurement of the first base line of the survey of the coast; which, having become impossible, by events which I was too far from supposing possible, I will here only give the result of what was done.

The following are the different standards compared and their origin, which is the first thing to be related minutely:

1st. An iron metre standarded at Paris in 1799, by the committee of weights and measures, composed of members of the institute and foreign deputies, ad hoc,—its breadth is 1.″1 Engl. its thickness =

0"37, like all metres then made, to which it is exactly similar, it bears the stamp of the committee, namely, a section of the elliptic earth, of which one quadrant is clear, with the number 10,000,000 inside of the arc, the other three quadrants being shaded.

My friend, Mr. J. G. Tralles, now member of the academy of Berlin, was at that time deputy of the Helvetic republic for this purpose, and, as appears by the account of the proceedings, the foreign member who attended the construction and comparison of the length measures. He was so kind as to have this metre made expressly for me, simultaneously with all the others, passing in all respects the same process and comparisons; and on his return to make me a present of this, as well as of a kilogramme, also standarded by the committee, under the direction of Mr. Van Swinden, (being No. 2.)

2d. A very well executed iron toise, with its mother, in which it fits, forming with it a bar of three inches broad and half an inch thick. It is made by *Canivet a la Sphere a Paris;* this is engraved upon it, together with the notice, "*Toise de France étalonée le* 16*me* 8*bre*, 1768, "*a la temperature de* 16° *du thermometre de Mr. la Réaumur.*" On the back edge of the toise a line is drawn in the middle over the whole length, and, from a perpendicular crossing this line near one extremity, a point is laid off near the other extremity; along this line is engraved "*La double longueur du pendule sous l' equateur,*" a point being also in the middle, at the simple length of the pendulum.

Having been in Paris in 1796, the heirs of Mr. Dionis du Séjour, who had died shortly before, had given this toise to the celebrated artist, Mr. Lenoir, to sell it, from whom I bought it, considering it as the best and most authentic standard of this kind in private hands.

It is well known that about the time stated for the standarding of this toise, the Academy of Sciences had in contemplation to establish as a natural standard the double length of the pendulum under the equator, marked on this toise, probably to this very purpose, in which Mr. Dionis du Séjour must, by his situation at the academy, have taken particular interest. The work denotes its intention to a valuable purpose.

3d. Two copies of the toises of Mr. Lalande, which have been compared in England with Mr. Bird's scale of equal parts in 1768, after the return of Messrs. Mason and Dixon from the measurement of the degree in Maryland. These copies being of the same size and shape as the originals.

When I was in Paris, in 1795, Mr. Lalande communicated to me the above toises, for the use of the survey of Swisserland, which I had then begun. Mr. Tralles and I made two copies of each of them, those here compared being one set. The toises of Mr. Lalande are known to be marked A and B, but only on the woods in which they are framed, and from which they can easily be changed: our's were marked upon the iron itself, so as we found them, in the time, on the toises of Mr. Lalande.

N. B. The standards hitherto mentioned, I brought with me to this country at my first arrival in 1805, and ceded them some time after to John Vaughan, Esq. of Philadelphia, who has been so good as to lend them to me for the intended comparison.

4th. The brass metre standarded by Lenoir, No. 16 of the collection of instruments for the survey of the coast, which was compared at the Observatory of Paris, as per certificate of Mr. Bouvard and Arrago, its breadth is =1."1 English, its thickness =0."18. The certificate, dated at the Observatory, 16th March, 1813, says of it: "En applicant a nos mesures une correction dependante de l'inega-"litè de dilatation des deux metaux, il nous a semblé qu' a zero du "thermometre (centigrade) le metre en cuivre de Mr. Hassler, se-"roit plus court que l'Etalon en fer de nos archives de $\frac{1}{100}$me. de "millimetre."

Mr. Lenoir, who has been employed by the comitée of weights and measures to construct the standards, had taken the precaution, at that time, to make one brass metre, which passed all the comparisons with the others, at the standard temperature of 0° centigrade, at which, therefore, it is equal to the authentic iron metres, and forms the only direct mean of comparison between French and English measure. Of this metre the present is a copy, which I thought so much more interesting to have, as the original is unique in its kind, and the comparison of it with the English standard possible by direct means.

5th. One iron toise of Lenoir, No. 15 of the collection of instruments for the survey of the coast. It is near two inches broad, and about a fourth of an inch thick. Its comparison at the observatory at Paris, by the certificate quoted above, says it to be exactly equal to the toise of Peru, preserved at the said observatory.

6th. One iron metre, standarded by Lenoir, No. 18 of the catalogue of instruments for the survey of the coast. It is of the same breadth and thickness as the iron metres of the comitèe, but was not compared at the observatory of Paris, on account of being received too late.

7th. An iron bar, similar to the metre just mentioned, which I intended to bring to the proper metre length, for myself, being yet too long. It was used in the comparison; as well as an operation necessary for its standarding, as to vary the means of combination in the comparisons. It has not been worked since this, having been reserved for a future comparison.

8th. A brass standard scale, of English measure, of 82 inches, divided on silver to every tenth of inches, made by Mr. Troughton, No. 14 of the catalogue of instruments for the survey of the coast. It has the arms of the United States engraved upon it, and "*Troughton, London*, 1813." It is three inches broad, and half an inch thick.

To it belongs an apparatus for comparing measures by two compound microscopes, sliding on a rule of equal breadth and thickness with the standard; and adjustable parallel to it one microscope, having a micrometer reading directly the $\frac{1}{1000}$ of an inch.

A description of this arrangement existing already in Nicholson's Journal, though on a much smaller scale, all details may here be omitted.

The scale was divided by Mr. Troughton with the utmost care and accuracy, so justly praised in this eminent artist. It contains the double length of the principal part of his own scale, of which an account has been given in the paper of Sir George Shuckburgh, above quoted. Mr. Troughton compared his scale first again in itself, and made a table of errors for the same, in like manner as he has described in his method of hand dividing (Philosophical Transactions, 1809) and then laid off the scale here used, correcting each point according to this table.

To give to a bar of a certain thickness an accurate length, by a cut perpendicular to its length, is an operation which cannot be performed by the free hand, which will always work it uneven, and most likely rounded. To do this with accuracy I had a tool constructed, &c. &c.

(The description of this tool, the iron bars, and the manner in which they have been worked, may here be passed over, merely mentioning that the four bars were of equal breadth and thickness with the metres, and lettered A, B, C, D.)

For the actual comparison, the unequal thickness of the different standards obliged to support them, so as to bring them exactly to the elevation of the thickest, for which the foci of the microscopes are adjusted, and the value of the micrometer determined. In the comparison of the metres the brass scale was the thickest, and in that of the toises the toise of Canivet. The influence of this necessary supporting, when done only partially, is very great, therefore I had pine rules, made of sufficient breadth and length to support fully the standards and the butting pieces, which were used in reading off, as will be said immediately, and of the accurate thickness to bring each of the metres exactly to the focus, and free from all parallax. As it is completely inadmissible to take the edge of a bar, if ever so sharp, as object under the microscope for the purpose of comparison, because it never forms a good image, pieces cut off from the end of the above mentioned bars, (which had originally been made purposely about nine inches too long) were placed at the two ends of the metres, under comparison, to make the reading from the separation lines, presented by their close contact, which were not thicker than the lines of the scale. These pieces were from two to four inches long, worked to the exact thickness of the metre, or toise, with which they had to serve, and by rubbing with emery and oil one against the other, turning them in all positions, they were brought to make exact contact on the whole surface, which afterwards joined to the metre did the same with it, and on account of their equal thickness presented a plane crossed by the partition line. Upon this the micrometer wires which cross each other under an angle of about 30°, were brought, by optical contact, so that the partition line bisected the angle exactly in the crossing point of the wires.

The microscopes were furnished with paper reflectors, by a piece of white paper placed in a forward inclined direction between the microscopes and their supports, by which the light was reflected upon the scale or standard in the direction of the division lines, as required to avoid all shades of the lines, or partitions, which prevent accurate reading.

To prevent the influence of the heat of the observer's body upon the scale and apparatus, a large sheet of paper was nailed to the work bench, near the microscopes, where the observer approaches, and I worked with gloves on for the same reason.

From seven to twelve thermometers were constantly laying over the scale and the standards, and read off at proper intervals of time.

The workbench itself was near double as long as the scale, to obtain a sufficient length fully accurate plane, it was in this respect accurately adjusted before the work, and so placed in respect to the windows, that each microscope corresponded to the best equal light from a separate window; the bench was made of two three inch planks at right angle, and upon six legs.

There was no fire made in the room during the comparison; and, for a number of days before, the windows were besides left open day and night, to bring the room to a steady temperature, being equal to that of the atmosphere.

For the intended comparison of a day all was prepared the day before, and left lying just fit to begin the observations the next day, in order that all parts might be fully at rest, and after verification in the morning the actual comparison begun.

All these precautions are necessary to obtain satisfactory results, as I think may be observed by what will follow.

The possible inaccuracy of the readings may be considered in the direct ratio of their number, having four metres, and the scale holding the sum of two, I had the mean to halve this error by comparing always two together alternately, reading their sum at once on the scale, and forming an equation between the results, to obtain the value of each individual metre. This method had yet the advantage of leaving the observer fully unprejudiced upon what he shall read, as the combination of the different measures and the different influence of temperature occasions a variation which precludes previous estimates.

To this effect, the microscopes were placed to the decimal on the scale nearest to the sum of two metres, viz: 78.″7 or 78.″8, which was taken from +1″ to 79,″8, which approximated it nearest to the middle of the scale. When the scale had been removed, and the two metres with their support properly laid under, so as to bring the middle of their breadth under the centre of the microscopes, the middle contact was exactly made, and with a magnifying glass verified, then the butting pieces being laid on, the coincidence of one end with the crossing wires of the fixed microscope was obtained by longitudinal motion, and the micrometer wires being moved upon the other line of contact, between the metre end and the butting piece, the va-

lue of the corresponding subdivisions was read on the micrometer, by its revolutions and subdivisions. The longitudinal motion cannot be made by hand; it is obtained by light strokes with a proper piece of wood, and requires dexterity and care, particularly not to separate the different pieces by the counter stroke.

The value of the micrometer parts was to be previously ascertained by accurate and repeated measurements of a decimal on the scale, in different places; by a mean of many, I found under the adjustment for the metres 0.″1 on the scale = 1.″004 of the micrometer.

At last the individual value of the distance used on the scale in relation to the mean value of the same distance resulting from the measurement of it, on as many parts of the scale as was admissible, was to be determined, in order to give the true mean value of the distance of the points of the scale compared. This was done by about 50 measurements principally after the comparison had been made, and before any alteration had been made in the microscopes. So I found the distance used, or 79.″8 — 1.″0 = 78.″800172 of the mean value of the scale; to this, therefore, all the values obtained by the metre comparison were ultimately referred.

To shorten the manner of registering the results and the combination of the metres and their position, the following mode of notation was adopted:

Mc denotes the iron metre of the committee of weights and measures.

M*l*	-	Lenoir.
M*b*	-	brass metre of Lenoir.
M*j*	-	iron bar which I intended to bring to a metre length.
M*c*+*l*	-	metre of the committee and that of Lenoir together, all marks up.
M*c*+*l*	-	the same metres, all marks down.

And, in like manner, in the other combinations, the adding of the special marks at the top, denoting always the sum of the metres so indicated, and the inversion of the letters the inversion of these metres.

The 15th March, early in the morning, the eleven thermometers which had been lying over night on the scales, prepared the evening before, were read; after having verified that all was in order, then it was further observed, as by the following table:

Standards under comparison.	Measures of the micrometer.	Mean of the four results.	Correction for the micrometer value.	Final value of the mean.	Mean of thermometer, Fahrenheit's temperature.
Mc+b	78.″76040				30.°85
Mɔ+q	.76115				
Changed ends for middle.		78.″760962	—0.″000244	78.″760718	
Mc+b	78.76099				
Mɔ+q	.76131				
Mb+l	78.75903				
Mq+ɿ	—760575				
Changed ends for middle.		78.759777	—0.000240	78.759537	
Mb+l	78.75920				
Mq+ɿ	—.760303				
Mc+l	78.760415				
Mɔ+ɿ	—.760450				
Changed ends for middle.		78.760472	—0.000242	78.760230	
Mc+l	78.760475				
Mɔ+ɿ	—.76055				34.1

(The four bars intended for the base measurement were now also compared, but the result is omitted as unimportant here.)

The micrometer microscopes having, in the foregoing comparison, read by addition, or from 78.″7 onwards, it was, the 17th March, turned for one half revolution horizontally, so as to read by subtraction, or from 78.″8 backwards, in order more effectually to compensate the influences possible from them by the following comparisons. The micrometer values were verified, and found as before. Then all was prepared for the comparison of next day. All other things being otherwise equally disposed.

The 18th March, A. M. all having been verified, the comparisons were made as by the following Table:

Standards compared.	Microscope Readings.	Mean of the four Results.	Correction for Microm. Value.	Corrected Result of Reading.	Final Value.	Mean Temperature.
	78.″8	-	-	-	+	46.6
Mc+l=	0.044075					
Mɔ+ɿ=	0.043000					
Changed ends for middle,		0.043900	0.0001756	0.043724	78.756276	
Mc+l=	0.043250					
Mɔ+ɿ=	0.043235					
Mc+j=	0.039175					
Mɔ+ʃ=	0.039300					
Changed ends for middle,		0.039702	0.0001588	0.039643	—.760357	
Mc+j=	0.040200					
Mɔ+ʃ=	0.040135					48.6
Ml+j=	0.041525					
Mɿ+ʃ=	0.040830					
Changed ends for middle,		0.041295	0.0001651	0.041130	—.758870	
Ml+j=	0.041600					
Mɿ+ʃ=	0.041225					

The four double Meter Bars were now successively put under comparison in their four possible positions, and found—

A =	0.044475					
V =	0.044250					
Changed end for end, -		0.044369	0.0001775	0.0441915	78.7568085	
A =	0.044325					
V =	0.044425					

Standards compared.	Microscope Readings.	Mean of the four Results.	Corrections for Microm. Value.	Corrected Result of Reading.	Final Value.	Mean Temperature.
B =	0.043375					
g =	0.043750					
Changed end for end, -		0.043362	0.0001734	0.0431886	—.7568114	
B =	0.043150					
g =	0.043175					
C =	0.043575					
c =	0.043775					
Changed end for end, -		0.043794	0.0001752	0.043619	—.756381	
C =	0.043850					
c =	0.043975					49.8
D =	0.043300					
d =	0.043100					
Changed end for end, -		0.0433625	0.00017345	0.0431890	78.756811	
D =	0.043550					
d =	0.043500					50.5

The same day P. M. the comparisons were repeated as follow:

Mc+l=	0.045890					50.3
Mc+l=	0.044625					
Changed ends for middle,		0.044829	0.0001793	0.0446497	78.7553503	
Mc+l=	0.044750					
Mc+l=	0.044550					

$Mc+j=$	0.040475	0.040850	0.0001634	0.0406866	—.7593134
$Mo+l=$	0.040525				
Changed ends for middle,					
$Mc+j=$	0.040850				
$Mo+l=$	0.041550				
$Ml+j=$	0.043175	0.0426125	0.0001704	0.0424421	—.7575579
$Ml+l=$	0.042450				
Changed ends for middle,					
$Ml+j=$	0.042300				
$Ml+l=$	0.042525				51.8

To make these results comparable, it is necessary to reduce them all to one temperature by the difference of expansion between iron and brass. I shall for this make use of my own results of the pyrometrical experiments made immediately after the comparison, and published in the philosophical transactions of Philadelphia of the same year, the results of which gave the expansion for one degree of temperature of Fahrenheit's scale,

		Difference.	
In iron	= 0.000006963535	0.000003545495	Decimal parts of the length.
In brass	= 0.00001050903		

On account of the change of temperature during the comparison, and the considerable influence of this element in the results, it is necessary to take for each comparison the proportional temperature corresponding to it between the readings of the thermometer, the work proceeding regularly, each single comparison will correspond to the proportional time.

The standard temperature to which I find it most natural to reduce the measurements is 32° Fahr. or 0° Centesimal & Reaumur, it being adopted for the meter and toise. I shall reduce the results of the iron to brass, so that the numbers will express the length of the meters in English inches of the brass scale, both at the temperature of 32°, which appears to me most naturally, being possible to obtain by actual experiment, while the giving of the meter at 32° in length, on the scale at 62°, is impossible to produce and verify in nature, therefore always a result of calculation in which the ratio of expansion used has too much influence. The brass metre is therefore considered as needing no reduction.

The constant quantity of 0″000172 is also to be added to each measure taken on account of the individual value of the part of the scale made use of.

The following table will therefore present the Results of all the foregoing Comparisons, with their Reductions:

Date of comparison.	Standards compared.	Temperature of the comparison.	Result of the comparison.	T. 32°	Reduction for temperature.	Value at 32° F.
15th March,	Mc+b	31°.4	78.760718	0°.6	0.000083773	78.760806226
					+	
	Mb+l	32.5	—.759537	+0.5	0.000069811	—.759778811
	Mc+l	33.7	—.760230	+1.7	0.0004747134	—.760876713
				+	+	
18th March, A. M.	Mc+l	47.1	78.756276	15.1	0.0042165	78.7606645
	Mc+j	48.1	—.760357	16.1	0.0044957	—.7650247
	Ml+j	48.9	—.758870	16.9	0.0047191	—.7637611
	Bars A	49.2	78.7558085	17.2	0.00480286	78.76078336
	B	49.5	—.7568114	17.5	0.00488162	—.76186502
	C	49.8	—.7563810	17.8	0.00497040	— 76152340
	D	50.2	—.7568110	18.2	0.00508204	—.76206509
18th March, P. M.	Mc+l	50.5	78.7553503	18.5	0.00516567	78.76068797
	Mc+j	51.0	—75.93134	19.0	0.00530555	—.76479095
	Ml+j	51.5	—.7575579	19.5	0.00544510	—.7631750

By the principles of the arrangement, it is evident that the value of any one single metre compared above will be obtained by a simple equation of the form; $C = \frac{(c+b) + (c+l) - (b+l)}{2}$; and so any of the others, mutating the letters accordingly.

The final results of these comparisons form therefore the following table of the values of the different meters compared at the temperature of 32° of both metre and scales, in English inches:

Date of the comparison.	*Mc.*	*Ml.*	*Mb.*	*Mj.*
15th March,	39.380952064	39.37992415	39.379854162	
18th March, A. M.	—.3809641	—.3797004		39.3840605
P. M.	—.38115196	—.37953601		—.3836290
Means -	39.381022708	39.37972015		39.3838448
Correction of the brass metre by the certificate - -			+0.00039381	
which applied, gives the metre corrected - - -			39.38024797	

These results might now be compared with those obtained by various comparisons made in England, these being however always stated so as taking the metre at 32°, and in value of the English scale at 62°, it is necessary to reduce them all for 30° difference of temperature full expansion of the brass. As I have not now the books in which they are related, and am ignorant, so various are they, which English standard and expansion has been used; supposing, however, that it has most generally been that of Borda, I will here only present, in a tabular shape, the different results as I have them, and reduce them to 32°, to compare them with my results. Observing, at the same time, that they are yet subject to the differences between the English standards themselves, which are in some instances greater than the differences of these results, as may be seen by the paper of Sir G. Shuckburgh, quoted above, and the account of Mr. Pictet, of Geneva, made in London in 1802. Borda's expansion for brass being 0.00000999, (though I have seen it lately stated at 0.0000101, on what ground I do not know, unless I suppose a mistake.)

Authority or observer.	Value given at 62°.	Reduced to 32°.	Difference with my results of committee metre.
The Roy. Soc. accepted	39.370572	39.38126801	+0.0002453
- - in 1800	—.3702	—.380896	—0.0001267
Mr. Pictet in 1802	—.371	—.381696	+0.0006733
Mr. Kater on S. G. Shuckburgh's scale, lately, 1818	—.37079	—.381486	+ 0.0004633
The same on Bird's scale (Unknown which of Bird's scales, there being a difference.)	—.37062	—.381316	+ 0.0002933

I do not compare by my ratio of expansion, because they were not made or known at the times of the older comparison; of course could never have been employed in them.

The 21st March, I took the different standards of the toise under comparison.

The toise of Canivet being half an inch French in thickness, and the brass scale half an inch English, this difference was compensated by laying four thicknesses of white paper strips under the whole length of the scale; the microscopes were adjusted to fit this toise, and then the scale adjusted to it; the other toises had rules of proper thickness to bring them to the same focus.

The distance of 76.″8, as nearest to the toise was taken between the microscopes, from + 2″ to 78.″8 on the scale as bringing the measure again nearest the middle of the scale.

The value of the micrometer was determined by repeated measurement of the decimal on the scale between 78.7 and 78.8 and found that it measured 0.″10053 by the micrometer; the readings here given, will, therefore, be corrected by this value of the micrometer, by which they will represent regular decimals of this individual subdivision.

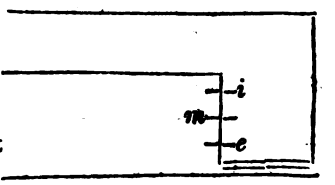
It was of course also here intended to compare the distance taken on the scale with all the other measures of the same distance which can be measured on the scale, and the value of the micrometer upon a great number of decimal divisions, to obtain a mean value of it. But it being necessary to begin the pyrometrical experiments before the cold weather should cease, I delayed this comparison until after, or to another opportunity, which did not occur before I delivered the whole of these standards, and the scale, with the other instruments. The values here obtained will, therefore, remain individual, unless some future occasion should present to make this necessary trial of the scale on the indicated length, when the results here given may be corrected accordingly.

The microscopes being screwed fast, and the 0.° of the micrometer not agreeing fully with the division of the scale, which, for small differences it is not proper to correct by the screw of the sliding piece, I used the better method of reading repeatedly the divisions of 78.7 and 78.8 on the micrometer, taking the point of the micrometer so determined, by a mean, for the zero, from which the readings of the micrometer are to be subtracted, as the micrometer read yet by subtraction from 78.″8, this point being 78.″8001375, all the readings given immediately, are to be subtracted from the number instead of 78.″8 only.

I intended of course also to repeat the comparison with the microscope reading directly or onwards, but the same reasons stated prevented the execution of it.

Using again abridged notations for the registering of the results, I called C = the toise of Canivet
L = - Lenoir
l^A = - Lalande marked A
l^B = - - - B
} inverting the letter when the marks laid downwards.

In the toise of Canivet, three points were observed on the length of the contact, lettered as follows:



i, at ¼ of the contact from the inner corner
m, in the middle of the contact
e, at 0.″05 from the outer end of the contact

In the toise of Lenoir only the middle was taken, (which is marked by a line,) like in the comparison at Paris. The same was done with the toises of Lalande. The turning end for end of the toise of Canivet in both cases related was impossible, on account of its breadth. *These comparisons* present the following table:

Toise compared.	Temp. mean.	Micrometer readings.		Means of the readings.	Corrections for microscopic er.	Corrected reading.	Final value.
	33.°4	76,8001375		—	(—0.00053)	—	
Cm		0.05825	0.05805				
Ci		0.05950					
Ce		0.05640		0.0576958	0.0003058	0.0573900	76.″7427475
Cm		0.05705	0.0573417				
Ci		0.058675					
Ce		0.05630					
	35.°1						
L		0.06153	0.06062		0.0003213	0.0592987	76.″7408389
L		0.06055					
	changed end for end						
L		0.06070					
L		0.05970					
	36.°1						
lA		0.06102	0.061835		0.0003277	0.0615073	76.7386302
Vl		0.06265					
lB		0.0536	0.053675		0.0002845	0.0503905	76.7467470
Bl		0.05375					
	39.°0						

The results of the foregoing table are now to be reduced to the standard temperature of 32° by the difference of expansion between iron and brass, for which I shall again use the result of my own experiments. They present thereby the following table of results of toise comparisons:

Denom. of Toise.	Temperature.	Result of the comparison unreduced.	T. 32°.	Reduction for temperature.	Value at 32°.
C	34.2	76.″7427475	+ 2.°2	0.00059722	76.″74334472
L	36.0	—.7408389	+ 4.0	0.00108820	—.74192710
*l*A	37.4	—.7386302	+ 5.4	0.00146921	—.74009941
*l*B	38.5	—.7467470	+ 6.4	0.00174145	—.74848845

$\frac{lA + lB}{2}$ as accepted in the comparison of the original of these toise in 1768, in London, 76.74429393

Having no books about me in which I could see for the details of comparison of toises with English measures, the comparison just quoted is the only one with which I could compare mine, and the inferiority of the two toises of Mr. Lalande in every respect renders it of very little importance.

In the comparison of 1768, the mean adopted as result was $\frac{lA + lB}{2} = 76.734$ at the temperature of 62°, which is stated to be 0.024 of an inch longer than when determined by Mr. Graham. I have not before me sufficient data to judge of the propriety of the mean adopted, as it does not follow immediately from the two individual results stated in my notice. In respect to the temperature it seems that both toises and the scale of Bird of equal parts were supposed both at the temperature of 62°. Reducing this result to 32°, by different ratios of expansions, it presents the following result comparable with mine :

	Ratio of difference of Expansion.	Amount of Expansion, +	Value at 32°
By Borda's expansion	0.00000352	0.0081031	76.7421031
By Troughton's	0.0000039	0.0089779	—.7429779
By my experiments	0.000003545495	0.0081618	—.742162

Which are all smaller than mine, and I should suppose to deviate more from truth, as they would give a more erroneous proportion between the metre and toise. But I must again observe, that my results may yet be subject to a small correction by the reduction of the distance used on the scale to its mean value, as has been done with the metres.

The ratio between metre and toise, which may be quoted, as well for curiosity' sake, as also as a kind of trial of my comparison, may here be stated in all combinations which the different standards admit; and I have in doing so the private interest of giving the ratio of the toise of Canivet to an authentic metre; because this toise has served in 1796, to Mr. Tralles and myself, to measure a base line of more than 40,000 feet by an arrangement of toises bars, which were standarded in it.

The ratio of the metre to the toise, or the metre expressed in decimals of the toise, is given by Mr. Delambre.

Metre = 0.513111185

With my denomination is obtained :

Toise

$$\frac{Mc}{C} = 0.513152$$

$$\frac{Mc}{L} = 0.513162$$

$$\frac{Ml}{C}=0.5131355$$

$$\frac{Ml}{L}=0.513145$$

$$\frac{Mb}{C}=0.513137$$

$$\frac{Mb}{L}=0.513146$$

$$\frac{Mc}{l\frac{A+B}{2}}=0.513146$$

$$\frac{Ml}{l\frac{A+B}{2}}=0.513130$$

$$\frac{Mb}{l\frac{A+B}{2}}=0.513131$$

Captain Kater's comparison of the metre with Bird's scale would give

$$\frac{M}{C}^{\text{B. Sc.}}=0.513156$$

$$\frac{M}{L}^{\text{B. Sc.}}=0.5131658$$

With sir George Shuckburgh's scale the deviation would be still greater.

F. R. HASSLER.

Newark, New Jersey, October, 1819.

E 1—*a*.

NEW HAMPSHIRE.

Governor of New Hampshire to the Secretary of State.

EXECUTIVE DEPARTMENT,
Epping, November 21, 1818.

SIR: By the last mail I received your letter of the 4th instant requesting a copy of the law of New Hampshire of 1718, upon the subject of weights and measures, and a statement of each scale beam,

weight, and measure, described in the act of 1797, and where, and in whose custody, they are kept.

I herewith send you a copy of the law of 1718, and of an additional act passed the 6th of George III. upon that subject. I transcribed them from books in my library; and, as I presume you do not wish to use them in a court of law, I did not suppose it necessary to send to the Secretary of this State for official copies, especially as I doubt whether even copies remain of both those laws in that office.

I have taken measures to obtain the requisite information respecting the scale beams, weights, and measures, belonging to this state, and as soon as I obtain it will write you on the subject.

I have the honor to be,
With much respect, sir,
Your obedient servant,
WILLIAM PLUMER.

Hon. JOHN QUINCY ADAMS,
Secretary of State U. S. Washington.

E 1—*b*.

Copy of an Act passed by the General Court or Assembly of the Province of New Hampshire, in New England, begun and held at Portsmouth, on the 13th day of May, 1718.

AN ACT FOR REGULATING WEIGHTS AND MEASURES.

To the end that weights and measures may be one and the same throughout this Province,

1. *Be it enacted by his Excellency the Governor, Council, and Representatives, convened in General Assembly, and by the authority of the same,* That the treasurer of this province shall provide one set of weights and measures as are according to the approved Winchester measures, allowed in England in the exchequer, which shall be public allowed standards throughout this province, for the proving and sealing of all weights and measures thereby: and the town clerk of every town within this province, not already supplied, shall, within three months next coming, provide, upon the town charge, one bushel, one half bushel, one peck, one ale quart, one wine quart, one ell, one yard, one set of brass weights to four pounds after sixteen ounces to the pound, with fit scales and steel beam, tried and proved by the aforesaid standard, and sealed by the treasurer, or his deputy, in his presence; which shall be kept and used only for standards in the several towns, who is hereby authorized to do the same, for which he shall receive, from the town clerks of every town, two pence for every weight and measure so tried, proved, and sealed. And the town clerk of every town shall commit the weights and measures unto the

custody of the select-men for their town, for the time being, who, with the town clerk, are enjoined to choose an able man for a sealer of all weights and measures for their own town, from time to time, and until another be chosen, who shall be presented to the next court, or some justice of the peace, to be sworn to the faithful discharge of his duty, and shall have power to send forth his warrants by the constables to all the inhabitants of each town, to bring in all such weights and measures as they make any use of, in the month of April, from year to year, at such time and place as he shall appoint, and make return to the sealer in writing of all persons so summoned; that then and there all such weights and measures may be proved and sealed, with the town seal; which is likewise to be provided by the town clerk, at each town charge, who shall have for every weight and measure, so sealed, one penny, from the owner thereof at the first sealing. And all such weights and measures as cannot be brought to their just standard, he shall deface and destroy: and, after the first sealing, he shall have nothing so long as they continue just with the standard.

2. *And it is further enacted by the authority aforesaid,* That, if any constable, select-men, or sealers, do not execute these laws, so far as to each and every of them appertains, shall forfeit for every neglect the space of one month, the sum of forty shillings; the half to the informer, the other half to the use of the poor of the town where such default is found; and every person neglecting to bring in their weights and measures at the time and place appointed, being only warned thereof, shall forfeit three shillings and four-pence; the one-half thereof to the use of the poor, as aforesaid, the other half to the sealer; and the penalties herein mentioned to be levied by distress, by warrant from any justice of the peace within this province.

3. *And it is further enacted by the authority aforesaid,* That, in every seaport town within this province, the town clerk is to provide, likewise, upon the town charge, one hundred weight, made of iron, to be tried, proved, and sealed, as aforesaid, and one half hundred, and one quarter of an hundred, and one fourteen pound weight, made of iron, to be tried, proved, and sealed, as aforesaid, and to be kept as standards in the said several towns, to be used as before for other weights and measures as is directed.

4. *And it is further enacted by the authority aforesaid,* That all steel-yards that are or shall be approved of by the standards, shall be allowed of in any of the towns of the said province, and be in the liberty of both buyer and seller to weigh by which they please.

5. *And be it further enacted by the authority aforesaid,* That all measures by which meal, fruits, and other things, usually sold by heap, shall be sold, be conformable, as to bigness, to the following dimensions, viz: The bushel not less within side than eighteen inches and half wide, the half bushel not less than thirteen inches and three quarters wide, the peck not less than ten inches and three quarters wide, and the half peck not less than nine inches wide. And if any person, at any time, from and after the first day of October next,

after the publication of this act, shall sell, expose to sale, or offer any meal, fruits, or other things usually sold by heap, by any other measure than is aforementioned, as to bigness and breadth, such person being complained of and convicted before any justice of peace within this province, of so doing, shall forfeit and pay, to the use of the poor of the town where the offence is committed, the full value of the meal, fruits, or other things so sold, or offered to sale; and such justice may commit the offender to prison, until payment be made of the said forfeiture, or cause the same to be levied by warrant of distress, and paid unto the town treasurer, or overseers of the poor, to the use of the poor aforesaid; and shall also cause such measure to be defaced: any law, usage, or custom, to the contrary in any wise notwithstanding.

6. *And be it further enacted by the authority aforesaid,* That the sealer appointed in each town within this province, from time to time, shall be, and hereby is, empowered to go to the houses of such of the inhabitants as, upon warning given in manner as is above appointed, shall neglect to bring or send in their beams, weights, and measures, to be proved and sealed at the place assigned for that purpose, and shall there prove and seal the same, and shall demand and receive of the owner of every beam, weight, and measure, proved and sealed, two pence, and no more: and every person that shall refuse to have their beams, weights, and measures, viewed, proved, and sealed, shall forfeit the sum of five shillings; one moiety thereof to the use of the poor of the town, and the other moiety to the sealer, to be recovered as is above provided. And if any person shall bring his beam, weights, or measures, to be proved and sealed at any other time than on the day or days set by the sealer for that purpose, he shall in like manner pay two pence for each that shall be tried and sealed.

7. *And be it further enacted by the authority aforesaid,* That if any person, from and after the first day of September next, after the publication of this act, shall sell, vend, or utter, any goods, wares, merchandises, grain, or other commodities whatsoever, by other beams, weights, or measures, than such as shall be proved and sealed as this act requires, the person so offending shall lose or forfeit the sum of five shillings for each offence of that kind; one moiety thereof to the use of the poor of the town where the offence shall be committed, the other moiety to the sealer or informer, who shall prosecute the same, to be heard and determined by one or more of his majesty's justices of the peace.

8. *And be it further enacted by the authority aforesaid,* That all beams, weights, and measures, kept for standards in the several towns, shall be proved and tried by the public standard at the end of ten years, from time to time; and all town standards shall be stamped with this mark, P N H; any law, usage, or custom, to the contrary notwithstanding.

E 1—c.

Copy of an Act passed 6th George III.

An Act in addition to an Act, entitled "An Act for regulating Weights and Measures."

Whereas the said act, by experience, is found ineffectual to answer the good end thereby intended, as the penalties therein imposed are insufficient to enforce a due observance thereof: Wherefore,

1. *Be it enacted by his Excellency the Governor, Council, and Representatives, convened in General Assembly, and it is hereby enacted and ordained by the authority of the same,* That, from and after the passing of this act, every person who shall neglect to bring in their weights and measures at the time and place appointed, (being duly warned thereof,) shall forfeit the sum of forty shillings, to be recovered and applied in the same manner as by the said act is directed, for recovering the fine therein inflicted for such neglect.

2. *And it is further enacted by the authority aforesaid,* That when and so often as the sealer of weights and measures, in any town or parish within this province, shall have probable cause of suspicion that any inhabitant has two sets of weights and measures, according to one, whereof, (being legal) the said inhabitant buyeth, and with the other (being lighter or smaller) he selleth, and secreteth the latter, or produceth not the same to the sealer, it shall and may be lawful for the said sealer, verbally, to warn the said inhabitant to appear before the next justice of the peace for the said province, who is hereby authorized and required to examine the said inhabitant upon oath (without fee or reward) touching the same weights and measures, that so the fraud (if any there be) may be detected; and if the said inhabitant, so verbally warned as aforesaid, shall refuse to attend upon the said justice as aforesaid, the said justice, upon satisfactory proof of the said warning, shall issue his warrant to apprehend such delinquent, and bring him, or her, before him, when, if the said delinquent shall refuse to answer upon oath, he, or she, shall incur and forfeit the same penalty as in the said act is inflicted on persons who shall sell, vend, or utter, any goods, wares, merchandise, grain, or other commodities, by other beams, weights, or measures, than such as shall be proved and sealed as the same act requires, and pay cost of prosecution.

3. *And be it further enacted,* That, for the future, the selectmen of the said towns and parishes, (not already provided) shall, at the charge of the towns and parishes, respectively, procure all those weights and measures which, by the law aforesaid, are to be provided by the town clerks, and improved and used as standards for the said towns and parishes; and in default thereof, for the term of six months from the passing of this act, those selectmen who shall be delinquent herein shall forfeit and pay the sum of ten pounds, for the

use of the poor of the town or parish where the selectmen shall be so negligent, to be levied by distress and sale of their goods and chattels, by warrant from any justice of the peace.

E 1—d.

An act regulating scale beams, steelyards, weights, and measures.

SEC. 1. *Be it enacted by the Senate and House of Representatives, in General Court convened,* That the governor, by and with the advice of council, be, and hereby is, authorized and empowered to appoint a sealer of weights and measures in each county in this state.

SEC. 2. *And be it further enacted,* That each sealer of weights and measures, appointed as aforesaid, shall provide, at the expense of the state, one complete set of scale beams, weights, and measures, similar to those now owned by this state; which shall be kept by him as standards for the use of said county. And it shall be the duty of said sealer of weights and measures to try and prove by said standards all scale beams, steelyards, weights, and measures, which shall be brought to him for that purpose by the sealers of weights and measures chosen in the respective towns in said county; and to seal such as shall be found just, agreeable to said standards, who shall receive six cents for every scale beam, steelyard, weight, and measure, so tried, proved, and sealed.

SEC. 3. *And be it further enacted,* That the selectmen of every town in this state shall provide, at the proper expense of their respective towns, one complete set of weights and measures, and a scale beam as aforesaid, for the use of said town, of such materials as the town shall think proper, provided the liquid measures be of some kind of metal.

SEC. 4. *And be it further enacted,* That each town in this state shall, at their annual meeting, choose one suitable person for sealer of weights and measures in said town, who shall be sworn to the faithful discharge of his duty, who shall notify the inhabitants to bring in all scale beams, steelyards, weights, and measures, as they make use of, in the month of May, from year to year, at such time and place as he shall appoint, by posting up a notification at every meeting house in said town, and if there be no meeting house, then at some public place in said town, three weeks successively prior to the day appointed; and the said sealer shall try, prove, and seal, all such scale beams, steelyards, weights, and measures, as shall be brought to him, and shall be found just, agreeable to said standards: and he shall have for every scale beam, steelyard, weight, and measure, so sealed, two cents from the owner thereof at the first sealing, and after the first sealing one cent only, so long as they continue just with the standard.

SEC. 5. *And be it further enacted,* That all measures by which meal, fruit, and other things usually sold by heap, shall be sold, be of the following dimensions, viz: the bushel not less within side than eighteen inches and a half wide; the half bushel not less than thirteen

inches and three quarters wide; the peck not less than ten inches and three quarters wide; and the half peck not less than nine inches wide. And if any person at any time from and after the first day of September next, shall sell, expose to sale, or offer any meal, fruit, or other things usually sold by heap, by any other measure than is aforementioned, as to bigness and breadth, such person, being complained of, and convicted before any justice of the peace within the county of so doing, shall forfeit and pay to the use of the poor of the town where the offence is committed, the full value of the meal, fruit, or other things so sold, or offered to sale, with costs.

Sec. 6. *And be it further enacted,* That the sealer of weights and measures appointed in each town within this state, from time to time, shall be, and hereby is, empowered to go to the houses of such of the inhabitants, having been duly notified as aforesaid, who shall neglect to bring or send in their scale beams, steelyards, weights, and measures, to be proved and sealed at the place assigned for that purpose, and shall there prove and seal the same, and shall receive of the owner for every scale beam, steelyard, weight, and measure, proved and sealed, twenty cents and no more; and every person that shall refuse to have their scale beams, steelyards, weights, and measures, viewed, proved, and sealed, shall forfeit the sum of ten dollars, one moiety thereof to the use of the poor of the town, and the other moiety to the sealer; and if any person shall bring his scale-beams, steelyards, weights, or measures, to be proved and sealed, at any other time than on the day or days set by the sealer of weights and measures for that purpose, he shall, in like manner, pay three cents for every scale-beam, steelyard, weight, or measure, that shall be tried and sealed, and one cent and a half for such as do not need sealing.

Sec. 7. *And be it further enacted,* That if any person, from and after the first day of September next, shall sell, vend, or utter, any goods, wares, merchandises, grain, or other commodities whatsoever, by other scale-beams, steelyards, weights, or measures, than such as shall be proved and sealed as this act requires, in any town where provision is made, and notification given agreeably to this act, or shall fraudulently so sell, utter, or vend, any goods, wares, merchandises, grain, or other commodities, by any scale-beams, steelyards, weights, or measures, that may be so sealed, that shall prove unjust, the person so offending shall forfeit a sum not less than one dollar, nor more than ten dollars, with costs, for each offence; one moiety thereof to the use of the poor of the town where the offence shall be committed, the other moiety to the informer who shall prosecute the same.

Sec. 8. *And be it further enacted,* That all scale-beams, steelyards, weights, and measures, kept for standards in the several towns, shall be proved and tried by the public county standards at the end of every five years from time to time.

Sec. 9. *And be it further enacted,* That if the selectmen of any town in this state neglect to comply with their duty in procuring weights and measures, and a scale-beam, as by this act is required,

they shall forfeit the sum of one hundred dollars, to be recovered, one half for the use of the county in which the neglect shall happen, and the other half for the use of the person who shall sue for the same.

SEC. 10. *And be it further enacted,* That when any sealer of weights and measures, that may be duly appointed in any town where a scale-beam, weights, and measures, are provided according to this act, shall neglect to notify the inhabitants as aforesaid, shall forfeit the sum of fifty dollars, and for neglecting the duties of his office in any other respect, from one to twenty dollars; one half for the prosecutor, the other half for the use of the town where such neglect shall happen. And all penalties and compensations mentioned in this act, may be sued for and recovered by action, bill, plaint, or information, in any court proper to try the same.

SEC. 11. *And be it further enacted,* That the sealer of weights and measures for each county may make use of such seal as he may think proper, provided a description thereof, in writing, be lodged in the secretary's office before it be made use of, and that the sealer of weights and measures chosen by each town, respectively, shall use such seal as the town may agree on, a record of which being previously made in the town records.

Provided, That this act shall remain in force till superseded by an act of the general government.*

Approved, December 15, 1797.

E 1—*e.*

Governor of New Hampshire to the Secretary of State.

NEW HAMPSHIRE EXECUTIVE DEPARTMENT,

Epping, January 4, 1819.

SIR: I regret that circumstances beyond my control have prevented me till this time from returning an answer to that part of your letter of November 4, 1818, requesting a statement of the scale beams, weights, and measures, owned by this state, and where, and in whose custody, they are kept.

The state owns, of *dry measures,* a bushel, a half bushel, and other measures of that kind, down to the smallest denomination. These measures are of copper, the bushel weighing about 100 lbs. and the others in proportion.

Of *liquid measures* there are a gallon, and half gallon; these are of block tin.

The weights are a 56 lb. 28 lb. and 14 lb. and two or three of a smaller denomination; these also are of copper.

The measures and weights are at Portsmouth, in the office of Robert Neal, Jr. Esq. commissary general of this state.

* The operation of this act was postponed by four several acts till 10th December, 1801.

As to scale beams and steelyards, I can find none owned by this state.

I have the honor to be, &c.

WILLIAM PLUMER.

Hon. JOHN QUINCY ADAMS,
Secretary of State U. S. Washington.

E 2—*a*.

VERMONT.

STATE OF VERMONT, EXECUTIVE DEPARTMENT,
Shaftsbury, January 20, 1818.

SIR: In compliance with a request from the Department of State, I have the honor to enclose to you a copy of a law of this state relating to weights and measures, which is the only act now in force in this state relative to a standard of weights and measures.

Mere accident, and not intentional delay, has prevented a more speedy compliance with said request.

I am, sir, with great respect,
Your most obedient servant,
JONAS GALUSHA.

Hon. JOHN Q. ADAMS,
Secretary of State of the U. S.

E 2—*b*.

An Act relating to Weights and Measures.

SEC. 1. *It is hereby enacted by the General Assembly of the state of Vermont,* That the treasurer of this state shall provide, and keep in good order and repair, in his office, one complete set of weights and measures necessary for the use of this state, according to the approved Winchester measure allowed in England in the exchequer, namely: one half bushel, one peck, one half peck, one ale quart, one wine gallon, one two quart wine measure, one quart, one pint, one half pint, one gill, and one half gill wine measure; one English ell, one yard, one set of iron weights, namely: one fifty-six pound weight, one twenty-eight pound weight, one fourteen, one seven, one four, one two, and one pound weight, and a suitable scale and beam necessary for the use of the same; also, one set of brass weights, from one ounce to four pounds, at the rate of sixteen ounces to the pound, and a suitable scale and steel-beam, necessary for the use of the same, tried and approved according to said standard of Winchester; which shall be considered and understood to be the public standard through-

out this state, for the approving and sealing all weights and measures. Which standard of weights and measures shall be provided by the treasurer of this state, from time to time, as the same shall become necessary, and kept in his office. And, if the said treasurer shall neglect to procure and keep in his office aforesaid all or any of the weights, measures, scales, or beams, as aforesaid, he shall forfeit and pay *one hundred dollars* for each and every six months he shall be so deficient, with costs, to be recovered before any court of competent jurisdiction; one moiety of which sum to the prosecutor, and the other moiety to the treasury of the county in which such prosecution shall be had. And each and every county treasurer within this state shall, at the expense of their respective counties, provide, within six months, and keep the same in repair in his office, all the aforesaid weights, measures, beams, and scales, according to the standard abovementioned, proved and sealed by the treasurer of this state; and shall, from time to time, keep the same in his office in good order and repair. And the selectmen of every town within this state shall provide, from time to time, as they may be wanted, at the expense of the town, one half bushel, and one peck, of the following dimensions, namely: the half bushel in diameter, within side, not less than thirteen inches and three quarters of an inch; the peck not less than ten inches and three quarters within side; one half peck, one ale quart, one wine gallon, one two quart, one quart, one pint, one half pint, one gill, one half gill, wine measure; one English yard; one set of brass weights from one ounce to four pounds avoirdupois weight, with scales and steel beam; all the above measures, weights, scales, and beams, to be tried, proved, and sealed, by the county treasurer, according to the aforesaid standard of Winchester provided by the respective counties, which shall be kept only for standards.

SEC. 2. *And it is hereby further enacted*, That all steelyards that are, or shall be, approved of by the standard, shall be allowed of in any town of this state, and be at the liberty of both buyer and seller to weigh by.

SEC. 3. *And it is hereby further enacted*, That all weights, measures, scales, and beams, provided by the respective towns within this state as aforesaid, shall yearly, and every year, be delivered to the sealer of weights and measures, who shall be chosen and sworn, as the law directs, in the several towns. And the sealer of weights and measures, within every town in this state, shall post up a notification in writing, in the month of January annually, requiring all and every person, within their respective towns, to bring in to said sealer of weights and measures all such weights and measures by which they respectively buy or sell, giving, at least, fourteen days' notice of the time appointed for sealing as aforesaid. And the sealers of such weights and measures may demand and receive, from the owner of all weights and measures, so tried, proved, and sealed, by the town seal, two cents for each weight or measure so sealed by him. And, if any person shall carry any weights or measures to be

sealed at any time, after the day notified for sealing as aforesaid, the sealers of weights and measures, in such case, may demand and take eight cents for each article sealed; which town seals shall be provided by the selectmen of their respective towns, at the expense and charge of the same.

SEC. 4. *And it is hereby further enacted,* That if the treasurers of the respective counties, or the selectmen or sealers of weights and measures of any town in this state, shall neglect or refuse to procure any weights, measures, scales, or beams, or shall neglect or refuse to seal any weight or measure, or to give notice as above directed, they shall severally forfeit, and pay for every month's neglect or refusal the sum of *three dollars* and *fifty cents;* one moiety to the prosecutor, and the other moiety for the use of the poor of the town in which such delinquent lives, to be recovered by action of debt, before any court proper to try the same.

SEC. 5. *And it is hereby further enacted,* That if any person, or persons, within this state, shall, twenty days after notice given by the sealers of weights and measures as aforesaid, sell or vend any wares, merchandise, or other commodities whatever, by any other beams, weights, and measures, but such as shall be tried, proved, and sealed, as this act requires, the person, so offending, shall forfeit, for each offence, a sum not exceeding *seven dollars;* one moiety thereof to the prosecutor, the other moiety for the use of the poor of the town, to be recovered in manner as is hereinbefore provided.

SEC. 6. *And it is hereby further enacted,* That all beams, weights, and measures, kept for standards in the several towns, shall be tried and proved every ten years by the county standard. And the state standard shall be stamped with the letters S. S., the several county standards shall be stamped with the letters C. S., and the several town standards with the letters P. D.

E 3—*a*.

MASSACHUSETTS.

Governor of Massachusetts to the Secretary of State.

MEDFORD, *October 24th,* 1817.

SIR: I have the honor to transmit to you, enclosed herewith, an abstract of the laws of the commonwealth of Massachusetts for regulating weights and measures.

With great respect,
I have the honor to be, sir,
Your most obedient servant,
J. BROOKS.

HON. JOHN QUINCY ADAMS,
Secretary of State.

E 3—*b*.

COMMONWEALTH OF MASSACHUSETTS,

Secretary's Department, Sept. 5th, 1817.

To his Excellency Governor Brooks.

SIR: In obedience to instructions from your excellency to furnish an abstract of the laws now in force in this commonwealth respecting *weights and measures*, for the purpose of complying with a request of the acting Secretary of State of the United States, made to your excellency by a note of the 29th of July last, in pursuance of a resolution of Congress of March 3d, 1817, I have now the honor to submit the following statement on that subject.

In February, 1800, an act passed the legislature of this commonwealth, entitled "An act for the due regulation of weights and measures," by which it was required that the brass and copper weights and measures formerly sent out from England with a certificate from the exchequer, to be approved Winchester measures, according to the standard in the said exchequer, and adopted and used, and allowed in this commonwealth, should be and remain the public allowed standards through the same, by which all weights and measures should be tried, proved, and sealed.

By said act it was made the duty of the treasurer of the commonwealth to have and keep, as public standards, to be used only as such, the *beams*, *weights*, and *measures* following, to wit: one bushel, one half bushel, one peck, one half peck, one ale quart, one wine gallon, one wine half gallon, one wine quart, one wine pint, one wine half pint, and one wine gill; the said measures to be of copper or pewter, conformable as to contents to said Winchester measures, and as to breadth, that is to say, the diameter of the bushel not less than eighteen inches and a half, containing thirty-two Winchester quarts; of the half bushel, not less than thirteen inches and three quarters, consisting of sixteen Winchester quarts; of the peck, not less than ten inches and three quarters, containing eight Winchester quarts; and of the half peck, not less than nine inches, containing four Winchester quarts; the admeasurement to be made in each instance within side the measure. Also, one ell, one yard, one set of brass weights to four pounds, computed at sixteen ounces to the pound, with fit scales and steel-beam. Also, a good beam and scales, and a nest of troy weights, from one hundred and twenty-eight ounces down to the least denomination, with the weight of each weight, and the length of each measure, marked or stamped thereon, respectively, and sealed with a seal, to be procured and kept by the said treasurer of the commonwealth. And, also, one fifty-six pound weight, one twenty-eight pound weight, one fourteen pound weight, and one seven pound weight, made of iron.

By the same act the county treasurers were also required to keep a complete set of beams, and of brass, copper, pewter, and iron weights, and of the aforesaid measures, (the bushel measure excepted) tried, proved, and sealed, by the said state standards, and marked or stamped as aforesaid, the measures to be conformable, as to breadth and contents, to the state standards, to be kept for the sole use of the respective counties, and to be used only as standards, and every ten years to be tried and proved by the treasurer and standards of the commonwealth; and, for neglect of duty in this behalf, the county treasurers are made liable to a fine of two hundred dollars.

The treasurers of towns were also required by the same law to procure and keep for town standards a complete set of *beams*, weights, and copper or pewter measures, under a penalty of one hundred dollars, to be conformable to said state standards, (excepting as to a bushel measure, and with liberty also to have a wooden, instead of copper, iron, or pewter half bushel, peck, and half peck.) The town treasurers also to be excused from procuring a nest of troy weights, other than from the lowest denominations to the size of eight ounces; the same to be tried, proved, and sealed, either by the treasurer of the commonwealth, or of the county within which the town lies, and to be proved and sealed every ten years. Said town treasurer also to procure and keep a town seal for the purpose of sealing weights, &c. And the selectmen of every town are directed by the same law, annually, to appoint a suitable person as sealer of weights and measures, with power to remove and appoint others. The person appointed to be sealer of weights and measures to be under oath; the selectmen are liable to a fine of ten dollars for neglect of duty in this case, and the sealer of weights and measures to a fine of one hundred dollars for neglect of duty. The sealer to receive the town seals and standards for the purpose of proving, marking, and sealing weights and measures.

The sealer of weights and measures is also required by said law to give public notice of his appointment, and of the time when, and place where, he will try, prove, and seal the measures and weights. And he is authorized to go to the houses, stores, or shops, of such as do not come to him to have their measures and weights proved, &c. And those who refuse to have beams, weights, and measures so tried, proved, and sealed, to forfeit ten dollars for every offence. Those who offer to sell, or do sell, without such proved and sealed weights and measures, to forfeit one dollar for every offence.

Fees to be paid state or county treasurer for sealing any weight, measure, scale, or beam, the first time three cents, and two cents for every after sealing of the same. The sealer of weights and measures for trying and proving town standards, and sealing them, to receive three cents, if they are found not conformable to the standard, and one cent and five mills for each beam, weight, and measure, if conformable thereto.

In 1804, March, an act passed the legislature, in addition to the act above referred to, and abridged, requiring the treasurer of the commonwealth to add to the troy weights, (by the first act ordered to be kept by him for public use,) as follows, viz: To the weight of one hundred and twenty-eight ounces, the further weight of twenty-seven grains; to the weight of sixty-four ounces, the further weight of fifteen grains; to the weight of thirty-two ounces, the further weight of six grains; to the weight of sixteen ounces, the further weight of seven grains; to the weight of eight ounces, the further weight of four and a half grains; to the weight of four ounces, the further weight of two and a half grains; to the weight of two ounces, the further weight of two and a half grains; to the weight of one ounce, the further weight of two grains; to the weight of half an ounce, the further weight of one quarter of a grain; or to procure new weights of the same denomination, and conformable to the state standards, with the additions aforesaid, respectively; and the same to be the standards of troy weight for the commonwealth.

By this last named act, the directors of all banks in the state are required annually to have all the weights used in their respective banks, compared, proved, and sealed, by the treasurer of the commonwealth, or by some person specially appointed by him for the purpose; and the weights of banks are not, therefore, required to be sealed by town treasurers or sealers. And no tender of gold by any bank is to be legal, unless weighed with weights thus compared, proved, and sealed.

The county treasurers are required by this law to have their standards of troy weights compared, proved, and sealed, by the treasurer of the commonwealth, once in ten years, at the expense of the county. And the treasurers of towns, at the expense of the towns, to have the town standards of troy weight compared, proved, and sealed, every ten years, by the treasurer of the commonwealth, or the treasurer of the county.

The above is the substance of the laws of this state now in force through the whole commonwealth on the subject of weights and measures. In June, 1817, a law passed regulating weights and measures in the town of Boston. The provisions of this law vary but little from the former law above abridged, which is obligatory through the state. It provides that the sealer of weights and measures for the town of Boston shall have a house or office, to which all persons in Boston, using scale-beams, steelyards, weights, or measures, for the purpose of buying or selling any article, shall be obliged, after due notice in the public papers, to send annually their scale-beams, steelyards, weights, and measures, to be tried, proved, and sealed, as required by the act first above referred to. The sealer in Boston, by this act, is authorized and required to go to the houses or shops of those who do not send their weights, scales, &c. to him, to try, prove, and seal the same; and is to have double fees in such case. For refusing to have scales, weights, &c. proved and sealed, and for using

weights, scales, &c. which are not conformable to the state standards, a fine of ten dollars is provided for each offence. And for altering any scale or weight, &c. a penalty of fifty dollars for each offence.

ALDEN BRADFORD,
Secretary of Commonwealth of Massachusetts.

E 4.

RHODE ISLAND.

Governor of Rhode Island to the Secretary of State.

THE STATE OF RHODE ISLAND,
Providence, September 5, 1817.

SIR: Agreeably to your request of the 29th of July last, relative to the regulations and standards for weights and measures here, I have to observe there is not any statute of this state regulating weights and measures, though the general assembly have passed some acts regulating the assize of casks, for cider and stone lime, but have never declared the cubical contents of a gallon or bushel.

The weights and measures now in use are sealed by the standard weights and measures procured from England many years since, and are said to be in conformity with those called the *Lower Standards.* However, they are the same as those used in the states of Connecticut and Massachusetts, which are generally known to be the same as the Winchester measure.

I have not been able to find, in the course of my researches, any thing written on the subject of weights and measures by any authority of this state, but I find it the immemorial custom of merchants to buy and sell sugar, rice, hay, iron, hemp, cordage, copperas, and dyewoods, by gross hundreds, that is, 112 pounds for the hundred.

Respectfully, sir,
Your obedient servant,

N. R. KNIGHT.

N. B. Land and distances are measured here by the English rod.

Hon. RICHARD RUSH,
Acting Secretary of State.

E 5—*a*.

CONNECTICUT.

STATE OF CONNECTICUT,
Litchfield, August 5, 1817.

SIR: I have received your letter of the 29th of July, and have directed the Secretary of State to transmit, to your department, exemplifications of the acts of this state, establishing the standards of weights and measures.

I have the honor to be,
With perfect respect, sir,
Your most obedient servant,
OLIVER WOLCOTT.

The Hon. RICHARD RUSH,
Acting Secretary of State, Washington.

E 5—*b*.

STATE OF CONNECTICUT,
Secretary's Office, August 12, 1817.

SIR: In compliance with the request of his excellency the Governor of this state, I enclose, herewith, for your use, exemplifications of all the statutes of this state now in force relating to weights and measures.

With great respect,
I have the honor to be,
Your obedient servant,
THOMAS DAY.

The Hon. RICHARD RUSH,
Acting Secretary of State, Washington.

E 5—*c*.

STATE OF CONNECTICUT.

At a general assembly of the state of Connecticut, in America, holden at New Haven, in said state, on the second Thursday of October, being the ninth day of said month, and continued by adjournments from day to day, until the first day of November, in the year of our Lord one thousand eight hundred.

An Act prescribing and regulating Weights and Measures.

SEC. 1. *Be it enacted by the Governor and Council, and House of Representatives, in General Court assembled,* That the brass measures, the property of this state, kept at the treasury, that is to say: a half

bushel measure containing one thousand and ninety-nine cubic inches, very near, a peck measure, and a half peck measure, when reduced to a just proportion, be the standard of the corn measures in this state, which are called by those names respectively; that the brass vessels ordered to be provided by this assembly, one of the capacity of two hundred and twenty-four cubic inches, and the other of the capacity of two hundred and eighty-two cubic inches, shall be, when procured, the first of them the standard of a wine gallon, and the other the standard of ale or beer gallon in this state; that the iron or brass rod, or plate, ordered by this assembly to be provided, of one yard in length, to be divided into three equal parts for feet in length, and one of those parts to be subdivided into twelve equal parts for inches, shall be the standard of those measures, respectively; and that the brass weights, the property of this state, kept at the treasury, of one, two, four, seven, fourteen, twenty-eight, and fifty-six pounds, shall be the standard of avoirdupois weight in this state.

Sec. 2. *Be it further enacted*, That the treasurer of this state, for the time being, shall have the custody and safe-keeping of all the aforesaid weights and measures; and it shall be his duty, personally, or by some meet person or persons by him appointed, to try all such weights and measures as shall, pursuant to the provisions of this act, be presented to him to be tried by the proper standard, and to seal such as are found true with the capital letters S. C.

Sec. 3. *Be it further enacted*, That the treasurer of each county shall, on or before the first day of January next, provide, and constantly keep and preserve in good order, weights and measures correspondent to all the aforesaid standards, and of like materials, and shall, within the time aforesaid, cause them to be tried and sealed by those standards; and, in default thereof, shall, on conviction, before the county court of the same county, pay a fine of seventeen dollars to the treasury of such county, to be recovered at the suit of the state's attorney for such county; and the county treasurer, for the time being, after such conviction, shall incur a like penalty every term of three months he shall neglect his duty herein prescribed, to be recovered as aforesaid, for the use aforesaid: *Always provided*, That the state standards aforesaid may be used and improved, as heretofore, as standards for weights and measures for the county of Hartford.

Sec. 4. *Be it further enacted*, That the treasurer of each county, for the time being, shall have the custody and safe-keeping of the weights and measures belonging to the county, and it shall be his duty, either personally, or by some meet person or persons by him deputed, to try all such weights and measures as shall, pursuant to the provisions of this act, be presented to him to be tried by the county standard, and to seal such as are found true with the capital letter C, and that which begins the name of the county.

Sec. 5. *Be it further enacted*, That the selectmen of each town shall, on or before the first day of March next, at the cost and charge of the town, provide weights and measures of the various kinds afore-

said, of good and sufficient materials, which, for the standards of liquid measure, shall be copper, brass, or pewter, as standards for such town, and cause the same to be tried and sealed by the county standards; also, the following vessels for corn measure, of the forms and dimensions herein described, to wit: a two quart measure, the bottom of which on the inside is four inches wide on two opposite sides, and four inches and a half on the two other sides, and its height from thence seven inches and sixty-three hundredths of an inch; a quart measure, the capacity of which is three inches square from bottom to top throughout, and its height seven inches and sixty-three hundredths of an inch; and a pint measure, the capacity of which from bottom to top is three inches square throughout, and its height three inches and eighty-two hundredths of an inch, and, in default thereof, such selectmen shall, on conviction before an assistant or justice of the peace, forfeit and pay a fine of seven dollars; the one half to him or them who shall prosecute to effect, and the other half to the town treasury. And all informing officers are required to inquire after, and due presentment make of, all breaches of this act, and, after such conviction, the selectmen, for the time being, shall incur a like penalty for every term of two months they shall neglect their duty herein prescribed, or shall, at any future time, fail to preserve such weights and measures, true and in good order for the use of the town, to be recovered as aforesaid for the use aforesaid.

Sec. 6. *Be it further enacted*, That the sealers of weights and measures in each town shall have the custody and safe-keeping of the weights and measures belonging to the town, respectively, and it shall be their duty, once in every year, to try the several weights, steelyards, and measures, that are used and improved by any person, or persons, in such town, by the town standards; to deface and destroy all such as cannot be brought equal with the standard, and to seal with the capital letter initial in the name of the town all such as are found or made true; and such sealer shall, sometime in the month of April yearly, give notice in writing to the inhabitants of the town, posted on the sign post and other public places in the town, to bring their steelyards, weights, and measures, at time and place therein fixed, to be tried and sealed. And if any person, or persons, shall, after the first day of May next, for the purpose of buying or selling, use any weight or measure until the same shall have been sealed in the manner aforesaid, each person, so offending, shall, for every such offence, forfeit the sum of two dollars, one half for the benefit of the town in which such offence shall be committed, and the other half for the benefit of the sealer of weights and measures for said town, whose duty it shall be to prosecute the same to effect.

Sec. 7. *Be it further enacted*, That every sealer who shall neglect his duty required in this act, shall forfeit the sum of five dollars for every such neglect, to the town treasury.

Sec. 8. *Be it further enacted*, That the statute entitled "An act for due regulation of weights and measures," be, and the same is hereby, repealed.

E 5—d.

STATE OF CONNECTICUT.

At a general assembly of the state of Connecticut, in America, holden at New Haven, in said state, on the second Thursday of October, being ——— day of said month, and continued by adjournments from day to day, until the ———— in the year of our Lord one thousand eight hundred and one.

An act in alteration of the statute, entitled "An act prescribing and regulating weights and measures."

SEC. 1. *Be it enacted by the Governor and Council and House of Representatives, in General Court assembled,* That the treasurer of this state do, without delay, provide a vessel of brass, the capacity of which shall be five inches square from bottom to top throughout, and nine inches and twenty-four hundredths of an inch in height, containing two hundred and thirty-one cubic inches, and the same, when provided, shall be the standard of a wine gallon in this state; any thing in said act to the contrary notwithstanding.

SEC. 2. *Be it further enacted,* That the provisions of said act shall relate to the said standard in all respects as they related to that in place of which it is substituted: and the treasurer of each county, by the first day of January next, and the selectmen of each town, by the first day of March next, shall, respectively, on penalty as by said act is in each case provided, to be recovered and applied as therein directed, provide, and cause to be tried and sealed by the proper standard, and constantly kept in good order, a vessel or measure of the same capacity as and for a standard of a wine gallon, for such counties and towns respectively.

At a general assembly of the state of Connecticut, holden at Hartford, in said state, on the second Thursday of May, in the year of our Lord one thousand eight hundred and ten.

An act regulating the measure of charcoal.

Be it enacted by the Governor and Council, and House of Representatives, in General Court assembled, That the standard measure of charcoal shall be the half bushel measure prescribed by the act, entitled "An act prescribing and regulating weights and measures," and that in measuring charcoal such measure shall be well heaped.

General Assembly, May session, 1810.

LYMAN LAW,
Speaker of the House of Representatives.
JOHN TREADWELL,
Governor.

Attest—THOMAS DAY, *Secretary.*

E 6—*a*.

NEW YORK.

The Governor of New York to the Secretary of State.

ALBANY, *4th September*, 1817.

SIR: In compliance with the request contained in your letter of the 29th of July, I now transmit a copy of the law of this state relative to weights and measures, marked number 6. The papers numbered 1, 2, 3, 4, and 5, exhibit our regulations on this subject, at different periods.

I have the honor to be, very respectfully,

Your most obedient servant,

DE WITT CLINTON.

The Hon. R. RUSH.

E. 6. *b*.

An act to ascertain the assize of casks, weights, measures, and bricks, within this colony. Passed June 19, 1703.

Whereas nothing is more agreeable to common justice and equity, nor for the good and benefit of any people or government, who live in community and friendship together, than that they have one equal and just weight and balance, one true and perfect standard and assize of measure among them; for want whereof experience shews that many frauds and deceits happen, which usually fall heavy upon the meanest and most indigent sort of people, who are least able to bear the same, and may be accounted little better than oppression. For remedy of which evil,

Be it enacted, and it is hereby enacted, by his excellency the Governor, by and with the consent of her majesty's council and representatives of this colony, &c. That, from and after the first day of August next, no cooper, or other person or persons whatsoever, within this city or colony, shall make any dry cask or vessel but of good and well seasoned timber, and of the respective dimensions following, viz.: Every hogshead to be forty inches long, thirty-three inches in the bulge, and twenty-seven inches in the head. Every tierce to be thirty-six inches long, twenty-seven inches in the bulge, and twenty-three inches in the head. Every barrel to be thirty inches long, twenty-six inches in the bulge, and twenty-two inches in the head. Every half barrel to be twenty five inches long, twenty inches in the bulge, and sixteen inches in the head. Every quarter barrel to be twenty inches long, sixteen inches in the bulge, and thirteen inches in the head. All tight barrels to contain thirty-one gallons and a half of

wine measure each, and not to exceed or be half a gallon over or under the same, and all other casks to contain in proportion to a barrel, upon penalty of five shillings for every offence committed to the contrary hereof, to be paid by the maker or user of such casks or vessels, in whose hands the said offence shall first happen to be known or discovered.

And to the preventing other frauds and deceits that may be in casks made as aforesaid,

Be it further enacted, &c. That, from and after the said first day of August, all and every the cask and casks, which shall be employed or used for the stowing or packing of flour or biscuit, within this city or province, for transportation thereof, or otherwise, in any way, of merchandise, before any of the said goods or commodities shall be put or packed therein, shall be truly weighed, and the just weight and tare thereof be set with a marking iron upon the head of each cask so employed as aforesaid, together with the name of each respective person using or employing the same, upon the penalty of nine pence, to be paid for every neglect herein, by the person or persons, respectively, on whose account any of the goods or commodities aforesaid shall, to the contrary hereof, be stowed or packed as aforesaid.

And be it further enacted, &c. That, from and after the first day of August aforesaid, there shall be one just beam or balance, one certain weight and measure, and one yard, that is to say, avoirdupois and troy weights, bushels, half bushels, pecks, and half pecks, according to the standard of her majesty's exchequer, in her realm of England, throughout all this colony, as well in places privileged as without, any usage or custom to the contrary notwithstanding; and that every measure of corn shall be striked without heap. And whosoever sell, buy, or keep any other beam, weight, measure, or yard, than as aforesaid, whereby any corn, grain, or other thing, is bought or sold, from and after the time limited as aforesaid, shall forfeit for every such offence 20*s*.

And for the better observance and putting in execution of this act, fit persons be appointed in all counties and cities within this colony, for the sealing and marking all beams, weights, measures, and yards, to be used within the respective counties and cities aforesaid, with the letter A, according to the standard of her majesty's exchequer in England, that the same may be known throughout this colony; and that his excellency the governor aforesaid be desired to nominate and appoint such fit persons in all proper places within this colony aforesaid, the which respective persons, when nominated and appointed, shall take for their pains in sealing and marking all such beams, weights, measures, and yards, as shall from time to time for that purpose be brought in to them, the rate of nine pence, except weights and small liquid measures, which shall pay only one penny each, and no more, on penalty of five shillings for the least exaction therein, saving always, nevertheless, unto the cities of New York, Albany, and borough of Westchester, and the mayors thereof, for the time be-

ing, all such rights, privileges, and usages, as they respectively can justly claim, as clerks of the market within the said cities and borough, or otherwise howsoever, any thing herein contained to the contrary hereof in any wise notwithstanding.

And be it further enacted, &c. That, from and after the first day of August, no person or persons, be he master or servant, shall make, or suffer to be made, in any place or places within this colony, any bricks, or kiln of bricks, but such as shall be well and thoroughly burnt, and of the size and dimensions following, that is to say: every brick to be and contain nine inches in length, four inches and one quarter of an inch in breadth, and two inches and one half inch in thickness thereof, all well struck off in good and workman-like order and manner, and made of right and well tempered mould, or clay, on penalty of six shillings for every neglect herein, to be paid by the master or owner of the said brick, or kiln, in whose hands or wheresoever the neglect or offence aforesaid shall be discovered or found out, except well bricks.

And it is hereby also further enacted, &c. That, from and after the time limited as aforesaid, no other casks, beams, weights, measures, yards, or bricks, shall be used within this colony than such as aforesaid, except well bricks and such other bricks as are already made or to be made before the commencement of this act, on the penalty of twenty shillings, to be paid by the person using the same, or any of them.

Provided always, That all and every the penalties and forfeitures in and by this act set and appointed as aforesaid, shall be one half to the use of the poor of the parish, town, or place, where the default or offence happens to be; the other moiety thereof to the use of the person or persons who shall inform and sue for the same forfeitures in any of her majesty's courts of record within this colony, or else to be recovered to the uses aforesaid, upon conviction of the offender by the oath of one sufficient witness before any justice of the peace, mayor, or other head officer of the city, county town, or place, respectively, where the offence against, or breach of this act, shall be committed, (who, by virtue of this act, shall have power to administer an oath on that behalf,) by way of distress and sale of the offender's goods and chattels; the overplus, if any be, after charges of the distress deducted, to be returned to the owner thereof, and where no distress can be had, that it shall and may be lawful to and for any justice of the peace, mayor, or head officer aforesaid, to commit the said offender or offenders to prison, there to remain without bail or mainprize until he or they shall pay the penalties and forfeitures aforesaid for which they shall be so committed, to the uses aforesaid. *Provided, also*, That no prosecutions shall be for any of the forfeitures aforesaid but within three months after the respective facts are committed; any thing herein to the contrary hereof notwithstanding.

E 6—c.

An act to ascertain weights and measures within this state. Passed 10*th April*, 1784.

Whereas it is agreeable to equity, and beneficial to commerce, that a people who live in the same community shall have one equal and just weight and balance, according to a true and perfect standard and assize of measures, to be established by law, without which necessary provision frauds and deceits may be practised with impunity:

1. *Be it therefore enacted by the people of the state of New York, represented in Senate and Asembly, and it is hereby enacted by the authority of the same*, That, from and after the first day of June next, there shall be one just beam, one certain weight and measure; that is to say, avoirdupois and troy weights, bushels, half bushels, pecks, and half pecks, according to the standard in use in this state, on the day of the declaration of the independence thereof: and that the standard weights and measures in the custody of William Hardenbrook, who, before and at the time of the said declaration, was the public sealer and marker of all beams, and weights, and measures, within the city and county of New York, which standard is according to the standard of the court of exchequer in that part of Great Britain called England, shall forever hereafter be deposited with, kept, and preserved by, the clerk of the peace, or common clerk of the city and county of New York, for the time being, and shall be and hereby are declared and established to be and remain the standard, for ascertaining all beams, weights, and measures, throughout the state, any usage or custom to the contrary thereof notwithstanding; and the said clerk of the peace, or common clerk, now, and for the time being, shall take an oath, to be administered to him in open court before the mayor, recorder, and aldermen, of the said city, well and faithfully to preserve the said weights, seals, and measures, and to suffer no other person to make use of the same, except a sworn public sealer and marker of weights and measures: *Provided always*, That the said William Hardenbrook shall deliver the said beam, weights, and measures, to the clerk of the peace, or common clerk, of the said city and county, in the presence of the mayor, recorder, and one or more of the aldermen of the said city, and shall declare, on his solemn oath, that the said beam, weights, or measures, are the same which he received from the court of exchequer aforesaid, according to the best of his knowledge and belief.

2. *Provided always, and be it further enacted*, That if any of the said standard beams, weights, and measures, shall be broken, impaired, or missing, that it shall and may be lawful to and for the mayor and aldermen of the city of New York, in common council convened, to cause to be delivered to the said clerk of the peace, or common clerk, for the time being, any standarded beam, weights, and measures, respectively, to supply such deficiency, taking care that the same is according to the standard established in the late colony,

now state, of New York, immediately preceding the declaration of independence of this state.

3. *And be it further enacted by the authority aforesaid,* That, for the better observance and execution of this act, it shall and may be lawful to and for his excellency the governor of this state for the time being, by and with the advice and consent of the council of appointment, to appoint fit persons in all convenient and proper places within this state, for sealing and marking all beams, weights, and measures: that the persons so to be appointed shall impress, with the letter A, all beams, weights, and measures, to be sealed and marked by each of them, respectively, and shall respectively take and subscribe an oath before one of the judges of the court of common pleas of the county in which he, or they, shall reside, for the faithful execution of the trust to be committed to them by virtue of this act; and the judge before whom such oath shall be taken, shall cause a certificate thereof to be filed with the clerk of the county wherein such judge shall reside: and every such sworn public sealer and marker of weights, seals, and measures, shall be entitled to receive for his pains in sealing and marking all such beams and measures as shall, from time to time, for that purpose be brought to him, the rate of nine pence, and for every weight, and every small liquid measure, one penny, and no more: saving always, nevertheless, unto the cities of New York and Albany, and borough of West Chester, and the mayors thereof for the time being, all such rights, privileges, and usages, as they respectively can justly claim, as clerks of the markets within the said cities and boroughs, or otherwise howsoever; any thing herein contained to the contrary hereof notwithstanding.

E 6—*d.*

Extract from an act supplementary to the act, entitled "An act to prevent the exportation of unmerchantable flour, and the false taring of bread and flour casks." Passed 7th March, 1788.

"7. *And be it further enacted by the authority aforesaid,* That the standard weight of wheat brought to the city of New York for sale, shall be sixty pounds nett to the bushel; and in all cases of sales of wheat in the said city by the bushel, if the same shall exceed the standard weight, the buyer shall pay a proportionably greater price; and if the same shall be less than the said standard the buyer shall pay a proportionably less price: *Provided,* That this regulation shall not extend to any special contracts respecting the sales of wheat, whatever may be the weight thereof."

E 6—e.

An act to amend an act, entitled "An act to ascertain weights and measures within this state." Passed February 2, 1804.

Be it enacted by the People of the state of New York represented in Senate and Assembly, That the secretary of this state for the time being shall, ex-officio, be the state sealer of weights and measures; and that there shall be one assistant state sealer, to be appointed from time to time, as occasion may require, by the person administering the government of this state, by and with the advice and consent of the council of appointment, in the county of Oneida; and that there shall be one sealer of weights and measures in each county, the western district of this state, to be appointed by the board of supervisors that shall think proper to appoint one at their annual meeting in October, and one town sealer of weights and measures in each town that shall think proper to elect one, to be elected as other town officers are directed to be elected.

And be it further enacted, That the several state standard weights and measures shall be made of iron, brass, or copper, as the secretary shall direct; and the several county standard weights and measures shall be of such materials as the several boards of supervisors shall direct; and the several town standard weights and measures shall be of such materials as the supervisor of each town shall direct.

And be it further enacted, That it shall be the duty of the said secretary, within nine months after the passing of this act, at the cost of this state, to procure two sets of standard weights and measures, of the same weight and capacity as is mentioned in the act hereby amended, with such beams as he shall think necessary, one set to be kept by himself as a principal state standard, and the other three sets to be delivered to the said assistant state sealers.

And be it further enacted, That the said county sealers of weights and measures shall, at the cost of the respective counties for which they are elected, within six months after being notified of their several appointments by the clerks of the several boards of supervisors, whose duty it shall be to give such notice, to procure a complete set of standard weights and measures, for the use of each respective county; and that the several town sealers of weights and measures, at the cost of the respective towns, shall, within six months after their respective appointments, procure a set of standard weights and measures for the use of the town or towns for which they shall be respectively appointed.

And be it further enacted, That the letters N Y shall be impressed on all the state standard weights, measures, and beams, and on the several county standard weights, measures, and beams, with such other device in addition as the said secretary shall direct for each county, which device shall be recorded in the records of this state, and a copy thereof delivered by the secretary to the assistant state sealer; and the several town standard weights, measures, and beams,

shall be impressed by the county sealer in which such town shall be situate, with such other device in addition to the county device, as the board of supervisors shall direct for the several towns, in their several counties: which several town devices shall be recorded by the clerks of the several boards of supervisors, in a book suitable for that purpose, and a copy of such record delivered by said clerk to the county sealer: *Provided, nevertheless,* That if any town shall neglect to appoint a town sealer of weights and measures, then it shall be lawful for the county sealer to seal all the weights, measures, and beams, belonging to the inhabitants of such town so neglecting.

And be it further enacted, That it shall be the duty of the assistant state sealers to have their standard weights and measures compared with the principal state standard once in fourteen years; and that the several county sealers shall have their standard weights and measures compared with one of the state standards once in seven years, and oftener if necessary; and the several town sealers shall have their town standards compared with the county standard once in three years; that before either of the sealers of weights and measures who shall be appointed by virtue of this act shall enter on the duties of his office, he shall take and subscribe an oath or affirmation before one of the judges of the supreme court, court of common pleas, or justice of the peace, of the county wherein such sealer is resident, well and truly, according to the best of his skill and ability, to perform the duties by this act enjoined, and cause a certificate thereof to be filed in the secretary's office, or the office of county or town clerk, as the case may be.

And be it further enacted, That each of the sealers of weights and measures within this state shall be entitled to receive for his service for sealing and marking beams or measures, which shall, from time to time, be brought to him for that purpose, twelve and a half cents, and for every weight, and every small liquid measure, two cents over and above his cost of making them right, if they are not so when brought to him for that purpose.

And be it further enacted, That so much of the act hereby amended as respects the appointment of sealers of weights, measures, fees, and device, shall be, and hereby is repealed, so far as respects the said western district.

E 6—*f*.

An act relative to a standard of long measure, and for other purposes.
Passed March 24, 1809.

Whereas the corporation of the city of New York did, in the year one thousand eight hundred and three, procure a brass yard measure, engraved and sealed at the exchequer in Great Britain, and have presented the same to this state, which has been deposited, together with the documents authenticating it, in the secretary's office—Therefore,

Be it it enacted by the people of the state of New York, represented in Senate and Assembly, That the said brass measure is, and shall be, the standard yard measure of this state.

And be it further enacted, That as soon as may be, after the passing of this act, it shall and may be lawful, and it is hereby made the duty of the secretary of this state, to cause the said standard measure to be engraved with the words *State of New York* thereon; and that he cause to be made and procured two brass yard measures for the city and county of New York, engraved with the words *City and county of New York;* one for the assistant state sealer in the village of Utica, engraved with the words, *State of New York;* and one for each of the respective counties of this state, engraved with the name of the proper county, similar to the aforesaid standard, and that he cause the measure, so procured and marked for each county, delivered to the clerk thereof, who shall keep the same for the use of the county, as the standard yard measure of this state for such county, and compare therewith all yard measures or rods, which may be presented to him for that purpose.

And be it further enacted, That the assistant state sealer, and clerk of each county, shall be paid twelve and a half cents for comparing each yard-stick or rod that shall be presented to him for that purpose, over and above the expense of making such stick or rod exactly compare and agree with the said standard measure of the county, when so presented.

And be it further enacted, That no surveyor, for any survey made for one year from the passing of this act, shall give evidence as a surveyor in any court, or elsewhere in this state, in any cause wherein lands is in dispute, respecting the survey or measurement thereof, unless such surveyor shall make oath, if required, that the chain or measure used by him, when surveying or measuring such land, was conformable to the standard measure of this state.

And be it further enacted, That the treasurer, on the warrant of the comptroller, shall pay to the secretary the expenses incurred by virtue of this act.

And be it further enacted, That the act, entitled "An act to direct the secretary to procure a state standard of long measure, and for other purposes," passed the 11th day of April, 1808, be, and the same is hereby, repealed.

And be it further enacted, That it shall and may be lawful for the inhabitants of any town in this state, for their convenience, and by a vote at their annual town meeting, to direct the clerk of such town to procure, and deposit in his office, a standard brass yard, to be sealed by the person authorized to seal and compare such yard, and to be considered as the true yard for all the purposes aforesaid.

E 6—*g*.

An act to regulate weights and measures. Passed March 19, 1813.

1. *Be it enacted by the People of the state of New York, represented in Senate and Assembly*, That there shall be one just beam, one certain weight and measure, for distance and capacity, that is to say: avoirdupois and troy weights, bushels, half bushels, pecks, half pecks, and quarts, and gallons, half gallons, quarts, pints, and gills, and one certain rod for long measure, according to the standard in use in this state, on the day of the declaration of the independence thereof: and that the standard of weights and measures, now in the office of the secretary of this state, which is according to the standard of the court of exchequer in that part of Great Britain called England, shall be, and is hereby declared to be and remain, the standard for ascertaining all beams, weights, and measures, throughout this state, until the Congress of the United States shall establish the standard of weights and measures for the United States.

2. *And be it further enacted*, That the secretary of this state for the time being shall, ex officio, be the state sealer of weights and measures: and that there shall be three assistant state sealers, to be appointed from time to time as occasion may require, by the person administering the government of this state, by and with the advice and consent of the council of appointment, to continue in office during the pleasure of the said council; one of which assistants shall reside in the city of New York, one in the city of Albany, and one in the county of Oneida: and that there shall be one county sealer of weights and measures, in each county in this state, to be appointed by the board of supervisors of the respective counties, at their annual meeting in October, to continue in office during pleasure; and one town sealer of weights and measures in each town in this state, to be elected at the annual town meetings, who shall continue in office for one year, and until another shall be chosen in his stead.

3. *And be it further enacted*, That it shall be the duty of the secretary of this state, within nine months after the passing of this act, in addition to the weights and measures already provided by law, and now remaining with the said secretary, and the assistant state sealer in the county of Oneida, to procure, at the expense of this state, so many weights, measures, and beams, as shall make out four complete standards of weights and measures, both of liquid and dry measures, and avoirdupois and troy weights, with proper beams, and standards, brass rods of long measure; one complete set to be retained in his office, as a principal state standard, and one other set of the said standards to be delivered to each of the assistant state sealers, taking their receipts respectively therefor; and the comptroller is hereby directed to audit the account of the secretary for his expenses in procuring the said additional standards of weights, measures, and beams, and

draw his warrant for the amount on the treasurer, who is hereby directed to pay the same out of any moneys in the treasury not otherwise appropriated.

4. *And be it further enacted,* That the several state standards of weights, beams, and measures, shall be made of iron, brass, or copper, as the secretary shall direct; and the several county standard weights and measures shall be made of such materials as the several boards of supervisors shall direct: and the several town standard weights and measures shall be made of such materials as the supervisors of each town shall direct.

5. *And be it further enacted,* That the said county sealers of weights and measures, shall, at the expense of the respective counties for which they are elected, within six months after being notified of their respective appointments by the clerks of the several boards of supervisors, whose duty it shall be to give such notice, and after receiving from their respective county treasurers, by order of the said board, so much money as may be necessary for the purpose, procure a complete set of the said standard weights and measures for the use of their respective counties: and every such county sealer shall forthwith, after having procured such standard, deliver to the clerk of the board of supervisors a statement, in writing, of the expense thereof, and that such standard is in his possession, and that the several town sealers of weights and measures shall, at the expense of the respective towns, within six months after their appointments, and after having received sufficient money for the purpose, procure a complete set of the said standard weights and measures for the use of the respective towns: and, having procured the same, shall deliver to the clerk of the town, to be filed in his office, such statement, in writing, as is before specified.

6. *And be it further enacted,* That the letters N. Y. shall be impressed on all the state standard weights, measures, and beams, and on the several county standard weights, measures, and beams, such other device in addition as the said secretary shall direct for each county: which device shall be recorded in the secretary's office, and a copy thereof delivered by the secretary to each of the assistant state sealers, and the several town standard weights, measures, and beams, shall be impressed by the county sealer in which such town shall be situate, with such other device, in addition to the state and county device, as the board of supervisors shall direct for the several towns in their respective counties: which several town devices shall be recorded by the clerks of the several boards of supervisors, in a book to be kept for that purpose: and that such clerk shall deliver a copy of such record to every county sealer.

7. *And be it further enacted,* That it shall be the duty of the assistant state sealers to compare their standard weights and measures with the principal state standard once in fourteen years: and that the several county sealers shall compare their standard weights and measures with one of the state standards once, at least, in seven years: and the several town sealers shall compare their town standards with

the county standard once, at least, in three years: that, before either of the sealers of weights and measures, who shall be appointed by virtue of this act, shall enter on the duties of his office, he shall take and subscribe an oath or affirmation before one of the justices of the supreme court, or one of the judges of the court of common pleas, or justice of the peace of the county wherein such sealer is resident, well and truly, according to the best of his skill and ability, to perform the duties enjoined on him by this act: and that every assistant state sealer shall cause a certificate of the oath, by him taken, to be filed in the secretary's office: and every county sealer and town sealer shall, in like manner, cause such certificate as aforesaid to be filed in the clerk's office of their respective counties.

8. *And be it further enacted*, That each of the sealers of weights and measures, within this state, shall be entitled to receive for his services, in sealing and marking measures and beams which shall, from time to time, be brought to him for that purpose, twelve and an half cents, and for every weight, and every small liquid measure, three cents, over and above a reasonable compensation for making them conform to the standard established by this act.

9. *And be it further enacted*, That it shall be the duty of the clerks of the several counties to deliver to the respective county sealers of weights and measures heretofore appointed, or hereafter to be appointed, the standard brass yard measure which shall have been received by such clerks from the secretary of this state for the use of the said counties.

10. *And be it further enacted*, That no surveyor shall give evidence in any cause pending in any of the courts of this state, or before arbitrators, respecting the survey or measurement of lands, unless such surveyor shall make oath, if required, that the chain or measure used by him in surveying or measuring such lands was conformable to the standard measure of this state.

11. *And be it further enacted*, That, whenever either of the assistant state sealers of weights and measures shall resign or remove from the cities of New York or Albany, or the county of Oneida, or whenever any of the county or town sealers shall resign or remove from the counties or towns in which they were respectively appointed, it shall, in that case, be the duty of the person, so resigning or removing, to deliver to his successor in office all the standard beams, weights, and measures, in his possession; and, in case of the death of any sealer of weights and measures, it shall, in like manner, be the duty of his executors or administrators to deliver to the successor, to be appointed, all the said standard beams, weights, and measures, in the possession of their testator or intestate, at the time of his death; and, in case of neglect or refusal to deliver such standard entire and complete, the successor in office may maintain an action on the case against the person so removing or resigning, or against such executors or administrators, and recover double the value of such standard, or such parts thereof as have not been delivered to the said successor in office, with costs of suit; and, in every such action, if

judgment shall be rendered for the plaintiff, he shall recover double costs; one moiety of which may be retained by the person so recovering, and the other moiety shall be by him applied to the purchase of such standard beams, weights, and measures, as may not be delivered over as aforesaid.

12. *And be it further enacted*, That if any person or persons shall, after one year from the passing of this act, use any weights, measures, or beams, in weighing or measuring, which shall not be conformable to the standard of this state, whereby any purchaser of any commodity, or article of trade or traffic, shall be injured or defrauded, it shall be lawful for the person so injured or defrauded to maintain an action on the case against the offender in any court having cognizance thereof; and if judgment shall be rendered for the plaintiff, he shall recover treble damages against the defendant, with costs of suit.

E 7.

NEW JERSEY.

ELIZABETH TOWN,
September 20, 1817.

SIR: I have the honor to acknowledge the receipt of your letter of the 29th of July last, accompanying a copy of a resolution of the Senate, relative to weights and measures. There is not in the state of New Jersey any legislative act establishing or regulating weights or measures, nor can I learn that the subject has, at any time, engaged the attention of the state legislature; but, by custom, the English standard of weights and measures has been adopted, and is in use throughout this state, and I know of no information that I can furnish, for enabling the Department of State to fulfil the views of the Senate.

I have the honor to be,
With very great respect,
Your most obedient servant,
ISAAC H. WILLIAMSON.

The Hon. RICHARD RUSH,
Acting Secretary of State.

E 8—*a*.

PENNSYLVANIA.

HARRISBURG, *August 26th*, 1817.

SIR: Your letter to the governor, accompanied by a copy of a resolution of the Senate of the United States, relative to weights and

measures, has been duly received some time since. In this office there are no materials calculated to afford any information on that important subject. There does not appear to have been any legislative act relative to it since A. D. 1700, which directs the standards to be regulated "according to the king's standards for the exchequer," (see Smith's edition of the laws, page 19.) I addressed a note to Mr. Meer, keeper of weights and measures in the city: I herewith enclose his answer, together with a report of a committee of Senate in 1814, and Dr. Bollman's letter; none of which, probably, will suggest any new ideas to you on the subject.

Very respectfully, sir, your obedient servant,

N. B. BOILEAU, *Secretary.*

RICHARD RUSH, Esq.
Acting Secretary of State.

E 8—*b*.

PHILADELPHIA, *August* 20, 1817.

SIR: Your letter of the 16th inst. requests me to give information respecting weights and measures, for the consideration of the Senate of the United States—a task I cheerfully undertake, as far as I am acquainted with the business, because they are in an incorrect and deranged condition throughout the Union, in consequence of the regulators not having a fixed and correct standard, to which they can resort to keep those they use in order. The variant and irregular weights and measures of the different states and towns proves a serious evil, both to the wholesale and retail dealer, and often produces difficulties in the trade between the several states, which calls for immediate redress. It being the peculiar province of the legislature of the United States to fix the standard of weights and measures, I am happy to find that the Senate have taken the subject under their serious consideration.

The standards in my keeping were, I believe, brought here by William Penn, more than one hundred years ago, and have been in use ever since; of course they cannot be very correct.

I would therefore propose that one simple standard weight be adopted and used for all purposes, and that its scantlings and parts be decimally divided, so as to suit the money of the United States, and that the unit be the English avoirdupois pound.

That, for measures of capacity, the wine gallon be the unit, and be used for all purposes where measures of capacity are necessary; and that for the measure of extension the English foot be adopted as the unit, and be decimally divided.

I believe that the British standard weights are made of agate, so that they may not be corroded by oxidating principles of the air, as most metals are. But I believe that platina would be fitter for the purpose, being easily formed, and less liable than any other metal to

be oxidated. I consider a cylindric form most suitable, both for weights and measures of capacity. No doubt the legislature will see the propriety of furnishing the capital or principal town of every state with a complete set of standards, so that the regulators may have the necessary standards made of coarser metal for their immediate use, as well as a resort to the means of keeping them in order.

In a trading community it is equally necessary to have correct scale beams as to have just weights. Frauds are daily occurring in consequence of not having a law for the inspection and regulation of them, similar to that for the regulation of weights. No person should be permitted to sell beams before they have been inspected and sealed by the proper officer.

I wish to refer you to Dr. Bollman's paper on the subject, in appendix to the journals of the Senate of March 18, 1814, No. 3; likewise to the report of March 3d, 1808, journals of the Senate; in which will be found valuable information.

I am, sir, with great respect, yours, &c.

JOHN MEER.

N. B. Boileau, Esq.

P. S. I wish to refer you, likewise, to a small treatise on moneys, coins, weights, and measures, proposed for the United States of America; wrote by Thomas Jefferson; printed by Daniel Humphries in 1789, Philadelphia.

I enclose Mr. Dorsey's report, as above noticed.

E 9—*a*.

DELAWARE.

Office of the Secretary of State,

Dover, Delaware, 7th Nov. 1818.

Sir: By direction of the Governor, I have the honor to reply to your letter requesting "such information of the acts of the state of Delaware, in relation to weights and measures, as he might think proper to communicate."

There is in our statute books but one act in relation to weights and measures—that is to be found in the first volume of our laws, page 57. By this act it is directed that standards of brass for weights and measures, according to the queen's standards for the exchequer, shall be obtained in each county within two years after the making of the law, and that these standards shall remain with such officer in each county as shall be, from time to time, appointed by the county court

in each county; and that all weights and measures shall be made just, and marked by the keeper of these standards, &c. &c.

This law is not *now* observed in any part of the state, and I am unable to say whether it ever went into operation in the counties of Kent and Sussex; the probability is, that it never did, as no evidence can now be had that it ever was carried into effect in either of these counties. In the county of New Castle the act was carried into execution: the standard weights and measures which it prescribed were obtained for that county, and persons were appointed at different times to be keepers of those standards: but, for a great many years, the law has ceased to be observed in that county; nor is it known whether the standards that were procured for that county are now in existence.

The Philadelphia weights and measures are generally used, I believe, in this state, but whether they are conformable to the standards designated by the act of assembly aforesaid, or not, I cannot say.

No decision of any of our courts, sanctioning any particular weights or measures, has, to my knowledge, ever been made.

I herewith transmit you a communication which I lately received from James Booth, Esq. the chief justice of our courts of common pleas and quarter sessions, a gentleman whose age, experience, and different public stations, have afforded many opportunities for obtaining information as to the subject of weights and measures as used and regulated in this state.

I have the honor to be, sir,
With great respect,
Your most obedient servant,
H. M. RIDGELY.

The Hon. JOHN Q. ADAMS,
Washington City.

E 9—*b*.

An Act for regulating Weights and Measures.

SEC. 1. *Be it enacted by the Honorable John Evans, Esq. with her Majesty's royal approbation, Lieutenant Governor of the counties of New Castle, Kent, and Sussex, upon Delaware, and Province of Pennsylvania, by and with the advice and consent of the freemen of the said counties, in General Assembly met, and by the authority of the same,* That in each county of this her majesty's government there shall be had and obtained, within two years after the making of this law, at the charge of each county, to be paid out of the county levies, standards of brass for weights and measures, according to the queen's standards for the exchequer; which standards shall remain with such officer in the counties aforesaid as shall be, from time to time, appointed by the county court, in each respective county of this government: and every weight, according to its standard, and every

measure, as bushel, half bushel, pecks, gallons, pottles, quarts, and pints, shall be made just weights and measures, and marked by him that shall keep the standards; and that no person, within this government, shall presume to buy or sell by any weights or measures not sealed or marked in form aforesaid, and made just according to the standards aforesaid by the officer in whose possession the standards remain, on penalty of forfeiting five shillings to the prosecutor, being convicted by one justice of the peace of the unjustness of his weights and measures; and that, once a year, at least, the said officer, with the grand jury, or the major part of them, and for want of a grand jury, with such as shall be appointed and allowed by the respective county courts aforesaid, for assistants, shall try the weights and measures in the counties aforesaid; and those weights and measures which are defective shall be seized by the said officer and assistants; which said officer for his fees, for his marking each bushel, half bushel, and peck, just measure, and marking the same that is large enough, when brought to his hands, shall have ten pence, and for every less measure, three pence; for every yard, three pence; for every hundred and half hundred weight, being made just and marked, three pence; for every less weight, one penny; and if the weights and measures be made just, before they be brought to him, then to have but half the fees aforesaid for marking the same. And if the said officer shall refuse to do any thing that is enjoined by this law, for the fees appointed, and be duly convicted thereof, shall forfeit five pounds, to the use of the governor for the time being. That a true measure or standard be taken from the brass half bushel in the town of Philadelphia, and bushel and a peck proportionable; and all less measures and weights coming from England, being duly sealed in London, or other measures agreeable therewith, shall be accounted and allowed to be good by the aforesaid officers, until the said standards shall be had and obtained.

Sec. 2. *And be it further enacted by the authority aforesaid*, That no person shall sell beer or ale by retail, but by beer measure, according to the standard of England.

E 9—c.

Mr. James Booth to H. M. Ridgely.

New Castle, *October* 24, 1818.

Sir: The letter, on the subject of weights and measures, which you were pleased to address to me, should have been earlier answered had not my engagements demanded my presence and attention to objects out of town.

The act of assembly passed in the reign of queen Anne, (vol. 1, 57,) to which you refer, was, I believe, carried into execution in the county New Castle. The standard weights and measures which it pre-

scribed, were obtained for this county; and I am enabled to state, from recollection, that persons were appointed, at two different times, to be keepers of those standards; other appointments were probably made, of which I have no recollection, and which cannot now be ascertained from the public records, many of which were lost during the revolutionary war. On inspecting those remaining in the office of the clerk of the peace, I found one appointment of keeper of the standards made in the year 1760. These keepers, with a part of the grand jury, traversed the county to examine and to rectify the weights and measures used by *sellers and bugers;* but this was not done once a year, agreeably to the act. I think I can recollect this duty to have been performed but twice in different years; and it is so long since, that I cannot pretend to point out the year when it was last performed; nor can I tell whether these standards are still in existence; or if they are, in whose possession they remain. I am also unable to state, whether the act of assembly went into operation, or not, in the counties of Kent and Sussex, or in either of them.

Whether the Philadelphia weights and measures differ from the exchequer standards, I cannot tell; but, I believe, the Philadelphia measures of capacity, particularly, are generally used in this state. I think it is so in the county of New Castle; and I remember that, in a controversy in Sussex about corn, it appeared from the testimony, that the Philadelphia sealed bushel was deemed by the parties to be the proper measure to ascertain the quantity. But I know of no decision of any of our courts, sanctioning any particular weights or measures.

I regret that I can give you no definite information on all the subjects of your inquiry, nor do I know any source from which it can be drawn.

With every sentiment of regard,
I, am sir, &c.

JAS. BOOTH.

H. M. Ridgely, Esq.

E 10—*a*.

MARYLAND.

Council Chamber, Annapolis, August 9, 1817.

Sir: In the absence of his excellency the governor from the state of Maryland, I do myself the honor to acknowledge the receipt of your letter of the 29th ultimo, at this department, and to inform you that the English standard of weights and measures has been

adopted by this state. His excellency, however, will do himself the honor, immediately on his return, of replying to your letter.

I have the honor to be,
With high respect,
Your most obedient servant,
NINIAN PINKNEY,
Clerk of the Council.

The honorable RICHARD RUSH,
Acting Secretary of State.

E 10—*b*.

COUNCIL CHAMBER, ANNAPOLIS,
December 1, 1819.

SIR: In reply to your letter of the 1st of November, enclosing a copy of a resolution of the Senate of the United States, passed the 3d of March, 1817, on the subject of weights and measures, I have the honor to inform you that the only legal regulation upon those subjects in the state of Maryland is comprised in several acts of Assembly, of which copies are herewith transmitted to you. It may be proper to add that, by the act incorporating the city of Baltimore, passed at November session, 1796, chapter 68, the powers before vested by law in the standard keeper of Baltimore county, were transferred, within the limits of their jurisdiction, to that corporation, whose proceedings, from its being the only large commercial town we have, in effect now regulate the weights and measures throughout the whole state. It is believed that the English standard of measures has not, in practice, been strictly adhered to; as it is recollected that some years ago the half bushel which was used for measuring grain at Elkton, was larger than the one in use at Baltimore; and that the same measure in Baltimore was somewhat larger than the old standard kept in the different counties. It is believed, also, that a similar difference, in a small degree, exists between the fifty-six and other weights, regulated in Baltimore, and those adjusted by the standard keepers in the counties. The result has been that the Baltimore standard, both of weights and measures, now governs all the dealings and business of the state.

I am, sir, with much respect,
Your obedient servant,
C. GOLDSBOROUGH.

Hon. JOHN QUINCY ADAMS,
Secretary of State.

E 10—c.

An act relating to the standard of English weights and measures. Passed April, 1715.

Whereas the standards of English weights and measures are very much impaired in several of the counties of this province, and in some wholly lost, or unfit for use:

Be it enacted by the king's most excellent majesty, by and with the advice and consent of his majesty's governor, council, and assembly, of this province, and by the authority of the same, That the justices of the several county courts shall, by all convenient speed, at the charge of their respective counties, cause the standards they already have to be made complete, and purchase new standards where they have none; and, for the better preservation of them for the future, that they take good and sufficient security, in his majesty's name, to the use of the county where taken, from the persons that shall be entrusted by them to keep each standard, in the penal sum of fifty pounds sterling "for the safe-keeping of such standard, and for the due execution of the office of standard-keeper, and for the delivering the same up in the like good order they receive the same, when they shall be legally discharged from such trust," under the penalty of five hundred pounds of tobacco for each justice of that county court that shall omit to do what is required of them by this act, the one half to his majesty, his heirs and successors, for the support of government, the other half to the informer, or to him or them that shall sue for the same, to be recovered in the provincial court of this province, against such justices, jointly or severally, by action of debt, bill, plaint, or information, wherein no essoin, protection, or wager of law to be allowed.

3. *And be it enacted by the authority aforesaid, by and with the advice and consent aforesaid,* That all persons, whether inhabitants or foreigners, shall repair and bring their steelyards with which they weigh and receive their tobacco, to the standard, yearly and every year, to be tried, stamped, and numbered, for which they are to pay the person keeping the standard one shilling for every time such steelyards shall be tried and stamped as aforesaid; and every person or persons shall have their bushel, half bushel, peck, gallon, pottle, quart, and pint, if they make use of the same, or any of them, in buying or selling, duly tried and stamped at the standard aforesaid, except such of the measures aforesaid as come out of England, and are there stamped; for which trying and stamping they shall pay six pence a piece.

4. And whosoever shall presume to sell by any dry measures, without first having the said measures tried and stamped at the standard, shall forfeit the sum of five hundred pounds of tobacco.

5. And whosoever, likewise, shall presume to weigh and receive tobacco by steelyards which have not within one year past from such weighing and receiving, been tried and stamped at the standard,

shall forfeit one thousand pounds of tobacco, the one half of which aforementioned forfeitures to be paid to his majesty, his heirs and successors, towards the defraying the charge of the county where the offender shall dwell or reside, and the other half to the informer or informers, to be recovered in any county court of this province, by bill, plaint, or information, wherein no essoin, protection, or wager of law to be allowed.

6. And, if any person or persons shall refuse to pay any tobacco by such steelyards, tried and stamped as aforesaid, and shall thereby compel the owner to have them tried over again within the year, if the steelyards are true, such person, so refusing or compelling as aforesaid, shall pay for the new stamping, but if not, the owners of the steelyards to pay for the same.

E 10—*d*.

A supplementary act to the act, entitled "an act relating to the standard of English weights and measures." Passed 20th December, 1765.

Whereas, by the act entitled an act relating to the standard of English weights and measures, no penalty is imposed upon persons buying by any dry measure or measures, without first having the said measure or measures tried and stamped at the standard, as there is upon the seller: And whereas it is represented to this General Assembly that many buyers of grain, flaxseed, and other commodities, when the people have carried them a great distance to market, refuse to buy them unless by measure or measures of their own, which have been found, upon trial, to be larger than the standard aforesaid:

2. *Be it therefore enacted by the right honorable the lord proprietary, by and with the advice and consent of his lordship's governor, and the upper and lower houses of assembly, and the authority of the same,* That, if any person or persons shall hereafter buy, by any dry measure or measures, being his, her, or their property, or found or provided by him, her, or them, contrary to the true intent and meaning of the above recited act, he, she, or they, shall forfeit and pay the sum of five pounds current money for every offence, one half thereof to the informer, or him, her, or them, that shall sue for the same, and the other half to be paid into the hands of the treasurer of the respective shore where such forfeiture shall happen, and applied as the General Assembly for the time being shall direct and appoint, to be recovered in any court of record within this province, by action on the case, action of debt, bill of indictment or information, wherein no essoin, protection, or wager of law, or more than one imparlance, shall be allowed.

3. *Provided always,* That such action shall be commenced within one year from the time of the said offence being committed, and not afterwards.

E 11—*a*.

VIRGINIA.

The Governor of Virginia to the Secretary of State.

RICHMOND, VIRGINIA, *Council Chamber, Aug.* 15, 1818.

SIR: In compliance with the request contained in your letter of the 5th instant, I have the honor herewith of transmitting you the only laws on the statute book of this state on the subject of weights and measures.

I presume this is all the information which you need, or would wish to have communicated.

I have the honor to be, with the greatest respect,
Your obedient servant,
JAMES P. PRESTON.

The Hon. JOHN QUINCY ADAMS,
Secretary of State.

E 11—*b*.

An act for more effectually obliging persons to buy and sell by weights and measures according to the English standard. Passed August, 1734.

1. Forasmuch as the buying and selling by false weights and measures is of late much practised in this colony, to the great injury of the people:

2. *Be it enacted by the lieutenant governor, council, and burgesses, of this present assembly, and by the authority of the same,* That from henceforth there shall be but one weight, one measure, one yard, and one ell, according to the standard of the exchequer in England: and whosoever shall sell or lay by, or keep, any other weight, measure, yard, or ell, whereby any corn, grain, salt, or other thing, is bought or sold, after the tenth day of June, one thousand seven hundred and thirty-six, shall forfeit, for every offence, twenty shillings, being thereof lawfully convicted by the oath of one sufficient witness, before any justice of the peace of the county where the offence shall be committed; to be levied, by distress and sale of the goods of the offender, for the use of the poor of the parish; rendering the overplus to the party so offending: and in default of such distress, such justice of the peace shall commit the said party to the common *gaol* or prison, there to remain without bail or mainprize until he shall pay such forfeitures as aforesaid.

3. And to the end, all people may be more easily provided with such weights and measures, *Be it further enacted,* That the justices of the peace of every county, where they have not already provided the

same, shall, within eighteen months after the end of this session of assembly, provide, at the charge of their respective counties, brass weights, of half hundreds, quarters, half quarters, seven pounds, four pounds, two pounds, and one pound weight, according to the said standard: and measures of bushel, half bushel, peck, and half peck, dry measure, according to that standard: and gallon, pottle, quart, and pint, of wine measure, according to the said standard; with proper scales for the weights, upon pain of forfeiting, by every justice sworn into the commission of the peace, five shillings for every month such weights and measures shall be wanting, to be recovered, by action of debt, or information in any court of record in this colony; one half whereof shall go to the king, his heirs, and successors, for supporting the contingent charges of this government, and the other moiety to the informer.

4. And the said weights and measures, so to be provided, shall be kept, from time to time, by such person as shall be appointed by the county courts respectively, to which all persons may resort for trying their weights and measures; and when they are tried, and found to agree with the standard, the same shall be sealed by the person keeping such standard, with a seal, to be likewise provided by the justices aforesaid. And that the fees to the persons entrusted with the keeping such standard weights and measures, be, for the trying every *stillyard* and certificate thereof, one shilling; for the trying any weights or measures and sealing the same, four pence for every such weight or measure sealed, to be paid by the person for whom the service shall be done; any former law, custom, or usage, to the contrary hereof, in any wise, notwithstanding.

5. *Provided always*, That this act, or any thing herein contained, shall not be construed to prohibit any person or persons whatsoever from buying and selling by steelyards, which shall be tried by and agree with the standard aforesaid, where the buyer and seller, payer and receiver, shall both consent thereto: any thing in this act contained to the contrary hereof notwithstanding.

A copy.

Test,

ANTHY. WHITAKER, *Cop'g C. C.*

E 11—c.

An act concerning weights and measures. Passed 26th December, 1792.

1. Whereas the general assembly of Virginia, at their session in the year 1734, did pass an act, entitled "An act for more effectually obliging persons to buy and sell by weights and measures according to the English standard:"

2. *Be it therefore enacted by the general assembly*, That the said act shall continue and remain in force until the Congress of the United States shall have made provision on that subject.

3. *Provided always*, That all fines, forfeitures, and penalties, in the said act mentioned, shall be and enure one moiety to the commonwealth, and the other to the use of the informer.

4. This act shall commence, and be in force, after the passing thereof.

A copy.

Test,

ANTHY. WHITAKER, *Cop'g C. C.*

E 12—*a*.

NORTH CAROLINA.

Governor Miller to Mr. Rush, acting Secretary of State.

EXECUTIVE OFFICE, N. C.

Raleigh, August 19, 1817.

SIR: In compliance with the request contained in your letter of the 29th July, I enclose you a certified copy of an act of the general assembly of this state regulating weights and measures.

With much respect,

Your obedient servant,

WILLIAM MILLER.

RICHARD RUSH, Esq.
Acting Secretary of State.

E 12—*b*.

An act for regulating weights and measures.

1. Whereas many notorious frauds and deceits are daily committed by false weights and measures: for prevention whereof,

2. *We pray that it may be enacted, and be it enacted by his excellency Gabriel Johnson, Esq. Governor, by and with the advice and consent of his majesty's Council and General Assembly of this province, and it is hereby enacted by the authority of the same,* That no inhabitant or trader shall buy or sell, or otherwise make use of in trading, any other weights or measures than are made and used according to the standard in his majesty's exchequer, and the statutes of England in that case provided.

3. *And, for the discovery of abuses, be it further enacted by the authority aforesaid,* That the justices of each and every county within this

government shall, within two years next after the ratification of this act, at the charge of each county, respectively, provide sealed weights of half hundred, quarters of hundreds, seven pounds, four pounds, two pounds, one pound, and half pound; and measures of ell and yard, of brass or copper, and measures of half bushel, peck, and gallon of dry measure; and a gallon, pottle, quart, and pint, of wine measure; for the payment of which charge the said justices are hereby empowered to levy a tax on their respective counties, to be kept by such person, and in such place, as the justices of each respective county shall appoint, such person first giving sufficient security to the said justices in the sum of fifty pounds proclamation money; and the said justices shall also find and provide for the said person, a stamp for brass, tin, iron, lead, or pewter weights or measures, and also a brand for wooden measures, of the letters N C, upon pain of forfeiting and paying the sum of ten pounds proclamation money, to be recovered from the said justices by action of debt, bill, plaint, or information, in the general court of this province, and applied to the use of our sovereign lord the king, for and towards the support of this government and the contingent charges thereof.

4. *And be it further enacted by the authority aforesaid,* That any person whatever using weights and measures, shall bring all their measures and weights to the keeper of the standard of the county where such person shall reside or trade, to be there tried by the standard and sealed or stamped: and if any person, or persons, shall buy, sell, or barter, by any weight or measure which shall not be tried by the standard, and sealed or stamped as aforesaid, he, she, or they, so offending, shall, for every such offence, forfeit and pay the sum of ten pounds proclamation money, one half to the use of the county where such offence shall be committed, and the other half to the use of the party who shall sue for the same, to be recovered in any court of record in this government, wherein no essoign, protection, privilege, injunction, or wager of law, shall be allowed.

5. And whereas steelyards by use are subject to alterations:

Be it further enacted by the authority aforesaid, That all and every person, who shall use, buy, or sell, by steelyards, shall, once every year, try the same with the standard, and take a certificate from the keeper of the standard for the county wherein such person shall reside, upon pain of twenty shillings proclamation money, to be recovered and applied as aforesaid.

6. Repealed, vol. 2, 48.

7. *And be it further enacted by the authority aforesaid,* That the standard keeper of each and every county shall, at the next court to be held for the county in which he shall reside, take the following oath, viz: "You shall swear that you will not stamp, steal, or give "any certificate for any steelyards, weights, or measures, but such "as shall, as near as possible, agree with the standard in your keep-"ing, and that you will, in all respects, truly and faithfully dis-"charge and execute the power and trust by this act reposed in you, "to the best of your ability and capacity. So help you God."

8. *And be it further enacted by the authority aforesaid,* That the standard keeper of each and every county in this government, is hereby empowered and required, with the assistance of a constable (who is hereby commanded upon notice to attend him, upon information made to him of any person, or persons, keeping, or having in his or their house, or custody, any steelyards, weights, or measures, which shall have been altered, lessened, or shortened, since they were tried and sealed by the standard, or shall be suspected of buying, selling, or bartering, by such false weights and measures) to search the houses or other suspected places of such offender, for any such weights or measures so falsified; and if, upon search, any such false weights or measures shall be found, he shall charge a constable with the owner of them, or the person using them, who shall forthwith convey him, her, or them, before any justice of the peace, who is hereby directed to bind him, her, or them, over to the next court to be held for the county where the offence shall be committed; and the said offence shall be laid before the grand jury by the king's attorney general, or his deputy, and for want of them, by any person the county court shall think fit to appoint, and shall be cognizable by the said grand jury either by indictment or presentment; and if upon trial by a petit jury such offender or offenders shall be found guilty, the county court shall fine each and every person, so convicted, in a sum not exceeding twenty-five pounds proclamation money, one-third part thereof to the informer, one-third part to the standard keeper, and one-third part thereof to be paid to the justices of the county, to be applied to the use of the county where the offence shall be committed; and shall commit the offender to jail until the same shall be paid: and further, if it appear to the county court, by the verdict of the petit jury, that the offender altered, lessened, or shortened, his or her steelyards, weights, or measures, or caused the same to be done, or used such steelyards, weights, or measures, knowingly, after they were so altered, lessened, or shortened, with an intent to defraud any person, in such case, the court shall, besides and notwithstanding the said fine, sentence such offender to stand publicly during the sitting of the court two hours in the pillory, with his offence written over his or her head; any law, custom, or usage, to the contrary notwithstanding.

9. *And be it further enacted by the authority aforesaid,* That the naval officer of each and every port within this government shall affix up, in a public part of his office, and there constantly keep affixed, an advertisement of this act, that traders coming into this government may have notice thereof, upon pain of forfeiting five shillings proclamation money, for every twenty-four hours the same shall be neglected, to be recovered by a warrant from any justice of the peace of the county where the offence shall be committed, by any person who shall sue for the same, and applied, one-half to the informer, and the other half to the use of the said county.

10. *And be it further enacted by the authority aforesaid,* That the justices of every county, respectively, shall have power to take and

receive into their custody all such weights and measures as have been already provided by their respective county or parish, and shall also demand and receive from all and every person, or persons, whatsoever, all such sums of money as have been already raised to purchase such weights and measures, and dispose of and apply the same according to the directions of this act.

11. *And be it further enacted by the authority aforesaid*, That all and every other act, and acts, and every clause and article thereof, heretofore made, so far as relate to weights and measures, or any other matter or thing within the purview of this act, is, and are hereby, repealed and made void, to all intents and purposes, as if the same had never been made.

A true copy:
Given 18th August, 1817.

WM. HILL, *Secretary.*

E 13—*a.*

SOUTH CAROLINA.

The Governor of South Carolina to the Secretary of State.

EXECUTIVE OFFICE, SOUTH CAROLINA,
10*th September*, 1818.

SIR: Yours of the 5th ultimo, covering a resolution of the Senate of the United States, requesting information upon the laws of this state regulating weights and measures within the same, has been received. I had the honor of receiving a former like communication from you, and directed the secretary of this state to give you every information upon the subject. This, I presume, has never reached you. I now enclose you copies of two sections of acts, which, I believe, are every thing contained in our statute book relating to weights and measures.

I have the honor to be,
With great respect, &c.

ANDREW PICKENS.

Honorable SECRETARY OF STATE
for the United States.

E 13—*b*.

Act of Assembly, passed 12th April, 1768.

"SEC. 5. The public treasurer shall, immediately after the passing of this act, procure, or cause to be made, of brass or other proper metal, one weight of fifty pounds, one of twenty-five pounds, one of fourteen pounds, two of six pounds, two of four pounds, two of two pounds, and two of one pound, avoirdupois weight, according to the standard of London; and, also, of cedar wood, neatly shaped and handled with iron, one bushel, one half bushel, one peck, one half peck measures, according to the standard of London; which weights shall each, respectively, be stamped or marked in figures denominating the weight thereof, and shall be kept by the said public treasurer: and the said weights and measures shall be deemed and taken to be the standard weights and measures by which all the weights and measures in this province shall be regulated."

Act passed 17th March, 1785.

"SEC. 63. The several justices of the county courts in this state, as soon as the same shall take place in the respective counties, shall have full power and authority to regulate weights and measures within each of their respective jurisdictions, and shall enforce the observance thereof in such manner and form, and under such penalties, as are already prescribed by law for regulating weights and measures."

E 14—*a*.

GEORGIA.

The Governor of Georgia to the Secretary of State.

EXECUTIVE DEPARTMENT, GEORGIA,
Milledgeville, 5th December, 1819.

SIR: I have the honor to enclose a copy of an act of the general assembly of this state, and an extract from an ordinance passed by the corporation of the city of Augusta, showing the regulation and standard for weights and measures in this state. Some delay in obtaining from Augusta the extract, together with a multiplicity of business occasioned by the legislature now in session, has prevented me from complying with your request at an earlier period.

The documents mentioned in your letter of the 4th ultimo have been duly received at this department.

I have the honor to be,

Very respectfully,

Your most obedient servant,

JOHN CLARK.

Honorable JOHN QUINCY ADAMS,
Secretary of State.

E 14—*b*.

An Act to regulate weights and measures in this state.

SEC. 1. *Be it enacted by the Senate and House of Representatives of the state of Georgia, in general assembly met, and by the authority of the same,* That the standard of weights and measures established by the corporations of the cities of Savannah and Augusta, and now in use within the said cities, shall be, and the same are hereby declared to be, the fixed standard of weights and measures within this state; and all persons buying or selling shall buy and sell by that standard, until the Congress of the United States shall have made provision on that subject.

SEC. 2. *And be it further enacted by the authority aforesaid,* That it shall be the duty of the justices of the inferior courts, or a majority of them, in their respective counties, by their clerk, or some other person especially authorized by them for that purpose, to obtain from the said corporations, or one of them, to be paid out of the county funds, the standard of weights and measures as fixed by them, within six months from the passing of this act; and that the said justices, or a majority of them, shall, so soon as they obtain the standard of such weights and measures, give thirty days' notice thereof at the court-house and three other public places in the county; and if any person or persons whosoever shall sell, or attempt to sell, any article or thing by any other or less weight or measure than that so established, he, she, or they, so offending, shall forfeit and pay three times the value of the article so sold, or attempted to be sold, to be recovered before any justice of the peace, if it should not amount to more than thirty dollars, and if above that sum before any judge of the superior court, or the justices of the inferior court, by action of debt; one half whereof shall be for the use of the informer or person bringing the action, and the other for the use of the county in which such act or offence may happen.

SEC. 3. *And be it further enacted by the authority aforesaid,* That it shall be the duty of the justices of the inferior court, or a majority of them, of the respective counties of this state, to procure a marking instrument, seal, or stamp, for the purpose of marking, sealing,

or stamping, all weights and measures within their several counties, which marking instrument, seal, or stamp, shall remain in the clerk's office of the inferior court, by him to be affixed to any weight or measure which he may find to correspond with or not less than the standards established by said corporations of Savannah and Augusta.

SEC. 4. *And be it further enacted*, That the said clerks of the inferior courts shall receive six and one-fourth cents for every weight and measure by them so marked, sealed, or stamped, to be paid by the person obtaining the same.

ABRAHAM JACKSON,
Speaker of the House of Representatives.
DAVID EMANUEL,
President of the Senate.

Assented to, December 10, 1803.
JOHN MILLEDGE, *Governor.*

E 14—c.

"*And be it further ordained*, That all weights for weighing any articles of produce or merchandise shall be of the avoirdupois standard weight; and all measures for liquor, whether of wine or ardent spirits, of the wine measure standard; and all measures for grain, salt, or other articles usually sold by the bushel, of the dry or Winchester measure standard: and all weights and measures used within this city shall be in conformity to the said public standard. It shall not be lawful for any person or persons to make use of any other than brass or iron weights, regulated as aforesaid, or weights of any other description than those of fifty, twenty-five, fourteen, seven, four, two, one, half, quarter pound, two ounce, one ounce, and down wards."

I certify the above to be true extracts from the original ordinance of the city council of Augusta.

Clerk's Office, 30*th November*, 1819.

JOSEPH CRANE, *Dep. C. C.*

E 15—a.

KENTUCKY.

The Governor of Kentucky to the Secretary of State.

FRANKFORT, *November* 26, 1817.

SIR: In compliance with your request, and the resolution of Congress on the subject of weights and measures, I have the honor to transmit to you a copy of the law of this state on that subject.

It may not be improper to remark, that weights and measures, agreeably to said law, have been procured as a general standard for this state.

I have the honor to be,

Your most ob't and humble servant,

GABRIEL SLAUGHTER.

The Hon. SECRETARY OF STATE,
Washington City.

E 15—*b*.

An Act concerning Weights and Measures, approved December 11, 1798.

Whereas the Congress of the United States are empowered, by the federal constitution, to fix the standard of weights and measures, and they have not hitherto passed any law for the aforesaid purpose: whereby an act passed by the general assembly of Virginia, in the year 1734, entitled "An act for more effectually obliging persons to buy and sell by weights and measures according to the English standard," still remains in force in this commonwealth:

SEC. 1. *Therefore, be it enacted by the General Assembly*, That the governor be, and he is hereby, authorized and directed to procure one set of the weights and measures in the said act specified, with proper scales for the weights, together with measures of the length of one foot and of one yard; and the bushel, dry measure, shall contain two thousand one hundred and fifty and two-thirds solid inches; and the gallon of wine measure shall contain two hundred and thirty-one inches; and the said weights, measures, and scales, shall be deposited in the custody of the secretary of state, to serve as a general standard for weights and measures within this commonwealth.

SEC. 2. *And be it further enacted*, That, when the aforesaid weights, measures, and scales, shall be procured as aforesaid, the governor shall cause to be made for each county, within this state, one set of weights and measures, and the last mentioned weights and measures shall be compared by the secretary of state with the aforesaid general standard, and, if found to agree therewith, shall be forthwith transmitted by him, together with scales proper for the weights to be procured as aforesaid, to the clerks of the several county courts in this state.

SEC. 3. *And be it further enacted*, That the said weights, measures, and scales, shall be kept by such person, in each county, as the court of the said county shall appoint; and, immediately after such appointment, the clerk shall make known the same by advertisement, to be fixed up at the door of the court house. And all persons, desirous of trying their weights and measures, may resort to the aforesaid county standards for that purpose; and the person appointed to keep the said standards shall, if he find them true, seal them with a

seal, to be provided by the county court, at the expense of the county: and the persons appointed in the several counties to keep the said county standards shall be entitled, for trying every steelyard, and certificate thereof, to twenty-five cents; for trying any weights or measures, and sealing the same, twelve and one half cents, for each weight or measure sealed, to be paid by the person for whom such service shall be done.

SEC. 4. *And be it it further enacted*, That, three months after the appointment of a person to keep the said county standards shall have been made known as aforesaid, every person who shall knowingly buy, or who shall sell, any commodity whatever by weight or measure that shall not correspond with the said county standards, or shall keep any such for the purpose of buying or selling with them, shall, for every such offence, forfeit and pay four dollars, to go towards lessening the county levy, and to be recovered before any justice of the peace for the county in which such offence shall be committed.

SEC. 5. *And be it further enacted*, That the auditor of public accounts shall issue his warrant, or warrants, on the treasurer, to such amount as the governor shall certify to be due, and to such person or persons as the same shall be owing, for furnishing and transporting the aforesaid weights, measures, and scales.

This act shall be in force from and after the passage thereof.

E 16.

TENNESSEE.

The Governor of Tennessee to the Secretary of State.

MURFREESBORO', *November* 24, 1819.

SIR: Your communication, relative to a standard of weights and measures, has been received, and as no fixed standard exists as to weights, I laid your request before the legislature, who are now in session—indeed I pursued the same course two years past, when a similar request was made by Mr. Rush, and am sorry to say the subject was not attended to, which, I trust, will not be the case in the present instance. At all events, I will do myself the honor to advise you of the result.

I am, with great respect,

Your obedient servant,

JOS. M'MINN.

JOHN QUINCY ADAMS, Esq.
Secretary of State of the United States.

E 17—*a*.

OHIO.

Governor Worthington to Mr. Rush, acting Secretary of State.

CHILLICOTHE, 18*th August*, 1817.

SIR: In compliance with the request made in your letter of the 29th ult. I have directed the secretary of state of Ohio to forward a certified copy of any law of the state for the regulation of weights and measures.

I have the honor to be, very respectfully,

T. WORTHINGTON.

RICHARD RUSH,
Acting Secretary of State of the United States.

E 17—*b*.

COLUMBUS, (Ohio,) 13*th September*, 1817.

SIR: Pursuant to a request of the governor of our state, I have the honor to transmit an extract from an act of this state, relating to measures. I concluded it was not necessary to transcribe the whole act, as the remainder thereof only relates to the appointment of a person to keep said standard, and to try and prove others thereby. As to weights, we have no legislative provision on the subject, which is much to be regretted.

I have the honor to be, with great respect,

Your most obedient, humble servant,

JOHN M'LENE.

The Hon. SECRETARY OF STATE,
for the United States.

E 17—c.

Extract from an act of the General Assembly of the state of Ohio, entitled "An act for regulating measures," passed the 22d day of January, 1811, *and now in force.*

"SEC. 1. *Be it enacted by the General Assembly of the state of Ohio,* That the county commissioners of each county in this state are hereby required and directed to cause to be made for each county one half bushel measure, which shall contain one thousand seventy-five and two tenths solid inches, which shall be kept in the county seat, and shall be called the standard."

E 18—*a*.

LOUISIANA.

New Orleans, September 15th, 1817.

SIR: I have the honor to acknowledge the receipt of your letter of the 29th of July last, together with the resolve of the Senate of the United States, and to enclose you herein the true copy of an act passed in 1815, by which you will perceive that the legislature of this state have deemed most proper to adopt the same standards for weights and measures as established in the United States, and used by their revenue officers.

With sentiments of very great respect,
I remain, sir, &c.

JAS. VILLERE,
Governor of the state of Louisiana.

The Hon. RICHARD RUSH.

E 18—*b*.

An act to establish an uniform standard of weights and measures within this state.

Whereas it is essential to the commerce of the state of Louisiana, that an uniform standard of weights and measures be established by law; therefore,

SEC. 1. *Be it enacted by the Senate and House of Representatives of the state of Louisiana in general assembly convened,* That the governor, at the expense of the state, shall procure one complete set of copper weights, to correspond with weights of their like denomination, used by the revenue officers of the United States in their offices, together with scales for said weights, and a stamp or seal, with such device as the governor may choose; as also one complete set of measures, calculated for dry, liquid, and long measure, of the same capacity and length as those of their like denomination used by revenue officers as aforesaid; which set of weights and measures, together with the scales and stamp, to be deposited in the custody of the secretary of state, to serve as a general standard of weights and measures within this state.

SEC. 2. *And be it further enacted,* That the administration and distribution of weights and measures within the limits of the city of New Orleans, shall be confided to an inspector of weights and measures, to be nominated by the governor, with the advice and consent of the senate; and it shall be the duty of the said inspector to see that no other weights but those established by this act be made use of within the limits of the said city, and in case of negligence, or breach on the part of the said inspector, he shall be condemned to pay a fine

not exceeding two hundred dollars, nor less than one hundred; the mayor and city council of New Orleans shall be authorized to pass any regulations, or such ordinances relative to the police of the said weights and measures, and to insure, within the limits of the said city, the execution of the present act; provided, however, that said ordinances or regulations do not contravene the provisions of this act, and that, should the office of inspector become vacant during the recess of the legislature, it shall be the duty of the governor to fill such vacancy.

Sec. 3. *And be it further enacted*, That every parish judge shall procure, at the expense of his parish, a set of weights and measures, and a stamp, conformable to those mentioned in the first section of this act, the same to be stamped, on their request, by the secretary of state, or his deputy;—the inspector of the city of Orleans shall procure the above set at the expense of the corporation of the said city.

Sec. 4. *And be it further enacted*, That the aforesaid weights, measures, and stamp, shall be deposited by the judge in the office of the clerk of the said parish on his accountable receipt, and it shall be the duty of the said clerk and inspector, when thereto required by any person, to stamp all measures whatsoever, if they find them true; and they shall be entitled to ask and demand for such service the following fees, and no more, viz: For every steelyard, with certificate thereof, twenty-five cents; for every measure that they shall try or stamp, six cents and a quarter, to be paid by the owners of the weights and measures by them stamped, over and above the price of the labor, and materials they may employ on such measures as require to be regulated by the standard; provided always, that the stamp shall be impressed and payment required for doing the same, only on such as have not yet been stamped, or such as having been once stamped, are found so defective as to require to be again regulated with the standard. Be it understood, however, that during the first year ensuing the day when this act shall begin to be in force, the said inspector shall only be entitled to half the fees established by the present section, and in case of resignation, removal, or death of the inspector, or clerks, the said weights, measures, steelyards, and stamps, shall be delivered to the person or persons named in their places.

Sec. 5. *And be it further enacted*, That if any clerk, inspector, or any person legally authorized to stamp weights and measures, shall knowingly and wilfully stamp weights and measures which do not correspond with the standard aforesaid, they shall, on conviction, be condemned to pay a fine of one hundred dollars for each offence, to be recovered on motion by the attorney general, or district attorney, before any court of competent jurisdiction, to the benefit of the parish in which the said offender may reside; and any person thus convicted shall besides be removed from office: the court, during the prosecution against the said clerks, shall be authorized to appoint a clerk pro tem.

Sec. 6. *And be it further enacted*, That one year after the governor shall have deposited such weights, measures, and steelyards, with the

secretary of state, as required by this act, no person shall buy or sell any commodity whatsoever by weights or measures, which do not exactly correspond with the aforesaid standard, or are not stamped; nor shall they keep any such weights or measures for the purpose of buying or selling thereby, under penalty of a fine of fifty dollars for each offence, besides the forfeitures of the weights, measures, and steelyards, found to be false, and of a fine of ten dollars, when the measures, weights, and steelyards, shall be found just, though not stamped; said fines to be recovered before any tribunal of competent jurisdiction, one half to the benefit of the informer, and the other half to the parish in which the said offender may reside. All weights and measures seized shall be forfeited for the benefit of the stamper, who shall have discovered the fraud, and he shall not return them into circulation until he has made them conformable to the standard.

SEC. 7. *And be it further enacted*, That whoever shall make, or cause to be made use of, or utter false stamps or scales, shall, on conviction before the district court where this offence is committed, be subject to all the pains and penalties of forgery under the law of this state.

SEC. 8. *And be it further enacted*, That it is forbidden to any person to sell, or cause to be sold, measures and weights, unless they have been tried and stamped by persons appointed for that purpose, agreeably to the present act, under the penalties imposed by the sixth section of this act, against all persons who shall have used false weights.

SEC. 9. *And be it further enacted*, That the persons to be appointed agreeably to the present act to try and stamp the weights, measures, &c. shall not commit their functions to a substitute, without being liable to all fines prescribed by this act.

SEC. 10. *And be it further enacted*, That any provision in this act contained to the contrary notwithstanding, there shall be in this state a dry measure to be known under the name of barrel, which shall contain three and a quarter bushels, conformable to the American standard, and shall be divided in half and a quarter barrel.

SEC. 11. *And be it further enacted*, That it shall be the duty of the governor, so soon as he shall have procured the weights and measures agreeably to this act, to make it known throughout the state by proclamation.

MAGLOIRE GUICHARD,
Speaker of the House of Representatives.

FULWAR SKIPWITH,
President of the Senate.

Approved, Dec. 21st, 1814:

WILLIAM C. C. CLAIBORNE,
Governor of the state of Louisiana.

A true copy from the original in my office.

MAZUREAU, *Secretary of State.*

E 18—c.

[TRANSLATION.]

Statement of M. Bouchon, respecting weights and measures in Louisiana before its cession to the United States.

1st. The measures in use in Louisiana, before its cession to the United States, were the following:

Measures of Length.

The king's foot, consisting of 12 inches, the inch of 12 lines;
The fathom (toise) of 6 king's feet;
The perch of 3 fathoms, or 18 feet;
The linear arpent of 10 perches, or 30 fathoms;
The league of 84 arpens;
The ell of Paris of 3 feet, 7 inches, 10$\frac{5}{6}$ lines.

Superficial Measures.

The square foot of 144 square inches;
The square fathom of 36 square feet;
The square perch of 9 square fathoms;
The square arpent of 100 square perches;
The square league of 7,056 square arpens.

Weights.

The scruple of 24 grains;
The gros of 3 scruples;
The ounce of 8 gros;
The mark of 8 ounces;
The pound of 16 ounces;
The quintal of 100 pounds.

Measures of Capacity for Liquids.

The pint of Paris of 46.95 cubic inches;
The velte of 8 pints;
The muid of 288 pints.

Measures for Grain.

The litron of Paris of 40.986 cubic inches;
The bushel (boisseau) of 16 litrons;
The septier of 12 bushels;
The muid of 12 septiers.

Measures for Fire Wood.

The cord of 4 feet height, 8 feet length, and the billets of wood 4 feet long.

2d. These measures are all of French origin. The lineal arpent, the league of 84 arpens, and the square arpent, are the particular measures of Louisiana. This is certain.

3d. The measures of length, of superficies, and of firewood, are still in general use in the state of Louisiana. They begin to measure firewood by the American foot, because it is to the advantage of the seller. For the same reason, the use of the pound has been so easily adopted. I know of no other measure of capacity, except the American gallon. Several persons who speculate in town lots buy by the French foot and sometimes sell by the American foot. They sometimes yet use the French ell, but its use in commerce is insensibly losing ground.

4th. The surveyor's chain of 22 yards contains 10 fathoms, 1 foot, 10.896 inches; 100 French fathoms contain 9.6916515 chains; the lineal arpent extends 63.9654 yards; the league of Louisiana, 244.2296 American chains; an acre is equal to 1.1829 superficial arpents of Louisiana; a square mile is equal to 756.1424 square arpens. One may calculate in general that the French foot is to the American as 16 is to 15. A square arpent is equal to 4,091.5724 square yards.

5th. It does not appear that the Spanish weights and measures have ever been used.

6th. The new superficial measures are very seldom used: the French and Spanish population will find it difficult to make use of them, as well as of the lineal measures.

7th. Neither Mr. Pilié, city surveyor, nor myself, know of any police law relative to weights or measures; and, although I have had an opportunity of reading a great deal, I have never fallen in with one of that nature. We know not of any French or Spanish standard in this country. The French and Spanish records of surveys (procés verbaux) are reported entirely according to the measures of Paris.

8th. The ancient inhabitants are well enough satisfied with the American weights, but all, and especially those in the country, find it very difficult to accustom themselves to the measures of length, and the superficial measures; and I think they will be long in doing so. This depends upon long contracted habits, and they cannot change these habits all at once. One must have gained great facility in calculation to be able to comprehend new superficial measures, at all times more difficult than measures of length or weights, especially when he sees no advantage to be derived from them.

The reports which I have presented of the ancient and new measures will be sufficient data for an accomptant to find out those others which I have not time to point out. Mr. Pilié and myself are very much pressed by business at present, and we beg Mr. Johnson to excuse us for not having done more, and in shorter time.

I beg him to be assured of the perfect consideration with which I am, &c.

BOUCHON,
Surveyor General of the state of Louisiana.

New Orleans, 9th October, 1820.

E 19—*a*.

INDIANA.

The Governor of Indiana to the Secretary of State.

CORYDON, *September* 9, 1817.

SIR: I have, herewith, the honor of submitting a report from the secretary of state for Indiana, relative to the regulation and standards for weights and measures in this state, in conformity to a resolution of the Senate of the United States of the 3d of March last.

Absence from the seat of government of our state prevented an earlier compliance with your request.

I have the honor to be,
With great respect,
Your obedient servant,
JONATHAN JENNINGS.

The Hon. the SECRETARY OF STATE.

E 19—*b*.

SECRETARY OF STATE'S OFFICE,
Corydon.

The Secretary of State, to whom was referred the resolution of the Senate of the United States of March 3d, 1817, requiring a statement relative to the regulations and standards for weights and measures in the several states, &c. has the honor to submit the following report, containing the regulations and standards for weights and measures as used, and now in force, in the state of Indiana.

One measure of one foot, or twelve inches English measure, so called; also, one measure of three feet, or thirty-six inches, English measure as aforesaid; also, one half bushel measure, for dry measure, which shall contain one thousand seventy-five and one-fifth solid inches; also, one gallon measure, which shall contain two hundred and thirty-one solid inches; which measures are to be of wood, or any metal the court may think proper; also, one set of weights, commonly called avoirdupois weight.

R. A. NEW, *Secretary.*

His Excellency the Governor
of the state of Indiana.

E 20—*a*.

MISSISSIPPI.

The Governor of Mississippi to the Secretary of State.

NATCHEZ, *September* 17, 1818.

SIR: I have had the honor to receive your letter of the 8th ultimo. By an act of the legislature of the Mississippi territory, passed the 4th February, 1807, the treasurer thereof was directed to procure one set of weights and measures according to the standard of London, which was to serve as a general standard for the territory. He was also directed to procure a set for each county; the latter provision was never carried into effect. The legislature, therefore, by an act of the 23d December, 1815, authorized the treasurer to procure six sets of the same standard, and directed them to be deposited at certain public places, under the care of an officer, whose duties are prescribed by the act; this law was duly executed, and the weights and measures, which were procured, are now the standard by which weights and measures are regulated throughout the state. I enclose to you copies of the acts herein alluded to.

I have the honor to be,
With great respect,
Your obedient servant,
DAVID HOLMES.

To the Hon. JOHN Q. ADAMS.

E 20—*b*.

An Act relative to Weights and Measures, passed 4th February, 1807.

SEC. 1. The treasurer of the territory be, and he is hereby, authorized and required to procure, as soon as may be, at the public expense, one set of weights and measures, viz: one weight of fifty pounds, one of twenty-five, one of fourteen, two of six, two of four, two of two, and two of one pound avoirdupois weight, according to the standard of the United States, if one be established; but if there be none such, according to the standard of London; with proper scales for weights, together with measures of one of the length of one foot, and one of one yard, cloth measure; and the measures of one half bushel, one peck, and one half peck, dry measure; also, the measures of one gallon, one of half a gallon, one of one quart, one of one pint, one of half a pint, and one of one gill, wine measure, according to the above named standards; and the said weights, measures, and scale, shall be deposited with the said treasurer, to serve as a general standard for weights and measures within this territory, until otherwise directed by Congress.

SEC. 2. When the aforesaid weights, measures, and scales, shall be provided as aforesaid, the treasurer shall cause to be made or pro-

cured for each county within this territory, at the public expense, one set of weights, scales, and measures; and the last mentioned weights and measures shall be compared by the said treasurer with the aforesaid general standard, and, when found to agree therewith, shall be forthwith transmitted by him to the clerks of the several county courts in this territory.

SEC. 3. The said weights, measures, and scales, shall be kept by such person in each county as the county court shall direct, who shall take the following oath, viz: "I, A B, do solemnly swear, (or affirm, as the case may be,) that I will, in all things, act with justice and faithfulness in my appointment as keeper of the standard of weights and measures, for the county of ——, according to law, to the best of my skill and judgment. So help me God." And, immediately after such appointment, the clerks of the several county courts shall make known the same by advertisement, to be fixed at the door of the court house; and, also, by inserting the same in one of the public gazettes of this territory. And all persons, desirous of trying their weights and measures, may resort to the aforesaid county standard for that purpose; and, if they are found true, the person appointed to keep the said standard shall seal them with a seal, to be provided by the county court, at the expense of the county; and the persons appointed in the several counties, to keep the said county standard, shall be entitled to receive, for trying every steelyard, and giving certificate therefor, and for trying any other weights and measures, and sealing the same, fifty cents each, to be paid by the person for whom such service is rendered or done.

SEC. 4. Three months after the appointment of a person to keep the said county standard shall have been made as aforesaid, every person, or persons, who shall sell any commodity whatever by weight or measure that shall not correspond with the said county standard, or shall keep any such for the purpose of buying or selling with, shall, for every such offence, forfeit and pay the sum of ten dollars; recoverable, before a justice of the peace, by any person who will sue for the same, and applied to his own use.

SEC. 5. The territorial treasurer shall transmit to the clerks of the respective counties the weights, scales, and measures, as directed by the second section of this act, within twelve months from and after the passing hereof.

E 20—c.

An Act passed December 23, 1815.

SEC. 1. The treasurer of the territory be, and he is hereby, authorized and required to procure, as soon as may be, at the public expense, six sets of weights and measures as described in the act, entitled "An act establishing weights and measures in the Mississippi territory," passed February 4, 1807.

SEC. 2. When the sets of weights, measures, and seals, shall have been procured by the treasurer as authorized by this act, one set shall be conveyed, at the public expense, to Huntsville, in Madison county; one other set to some place on or near Pearl river; one other set to the town of St. Stephens; one other set to the town of Mobile; one other set to the town of Woodville; and the sixth set to the town of Port Gibson, and be placed in the hands of some person to be appointed by the governor; and the sets of weights and measures heretofore procured shall be forthwith delivered to some person residing in the city of Natchez, to be appointed in the manner above described. And the keepers of weights and measures, hereby authorized to be appointed, shall, previously to entering upon the discharge of their duties, take the oath or affirmation prescribed in the third section of the act above recited; and the said keepers shall, immediately after their appointment, make known the same by advertisement, to be fixed at the door of the court house of the counties in which they reside; and, also, by inserting the same in the nearest newspaper published in this territory. And, immediately after the appointment of the said keepers, all persons residing in any part of this territory, and desirous to try their weights and measures, may resort to any of the aforesaid standards for that purpose; and, if they are found true, the keeper of any of the said standards shall seal them with a seal, to be procured by the said treasurer at the expense of the territory; and the persons appointed keepers, as aforesaid, shall be entitled to receive the fees prescribed by the third section of the act above recited, for the services therein specified.

SEC. 3. Three months after public notice of the appointment of a person to keep the said standard in the city of Natchez, every person residing in any of the counties lying upon the Mississippi river, and that, three months after public notice of the appointment of the other keepers of weights and measures hereby authorized to be made, every person residing in this territory, who shall sell any commodity whatever by weight or measure, that shall not correspond with the standard hereby established, shall, for every such offence, forfeit and pay the sum of fifty dollars, recoverable before any justice of the quorum, or of the peace; to be paid to the county treasurer for county purposes.

SEC. 4. The sum of four hundred dollars, in addition to the eight hundred dollars heretofore appropriated for the purpose of procuring weights and measures, be, and the same is hereby, appropriated for the purposes specified.

E 21.

ILLINOIS.

An act regulating weights and measures.

SEC. 1. *Be it enacted by the People of the state of Illinois, represented in the General Assembly,* That it shall be the duty of the county commissioners in each and every county within this state, as soon as practicable after they are qualified to office, to procure, at the expense of their respective counties, one measure of one foot, or twelve inches, English measure so called; also, one measure of three feet, or thirty-six inches, English measure as aforesaid; also, one gallon liquid or wine measure, which shall contain two hundred and thirty-one cubic inches; one measure that shall contain one-fourth part, one measure that shall contain one-eighth part, one measure that shall contain one-sixteenth part, of the aforesaid liquid gallon, denominated quart, pint, and gill, each of which shall be made of some proper and durable metal; also, one half bushel measure for dry measure, which shall contain eighteen quarts, one pint, and one gill, of the above liquid or wine measure, the solid contents of which is equal to one thousand and seventy-five cubic inches, and fifty-nine hundredths of a cubic inch; likewise, one measure that shall contain one-fourth part of the aforesaid half bushel, or one gallon dry measure, which said half bushel and its fourth shall be made of copper or brass; also, a set of weights of one pound, one-half pound, one-fourth pound, one-eighth pound, and one-sixteenth pound, made of brass or iron; the integer of which shall be denominated one pound avoirdupois, and shall be equal in weight to seven thousand and twenty grains troy or gold weight; which measures and weights shall be kept by the clerk of the county commissioners for the purpose of trying and sealing the measures and weights used in their counties, for which purpose the said several clerks shall be provided with a suitable seal, or seals, with the name, or initials, of their respective counties inscribed thereon.

SEC. 2. *Be it further enacted,* That as soon as the county commissioners shall have furnished the measures and weights as aforesaid, they shall cause notice thereof to be given at the court house door, one month in succession immediately thereafter; and any person thereafter who shall knowingly buy, or sell, any commodity whatsoever, by measures or weights in their possession which shall not correspond with the county measures and weights, shall, for every such offence, being legally convicted thereof, forfeit and pay the sum of twenty dollars, for the use of the county where such offence shall have been committed, and costs of suit, to be recovered before any justice of the peace of said county. Every person desirous of having their measures and weights tried by the county standard shall apply to the clerk of the county commissioners, and if he find it correspond with the county standard, shall seal the same with the seal provided for that purpose; and said clerk is allowed to demand and receive such fees as now are, or hereafter may be, allowed by law.

This act to be in force from and after its passage.

E 22.

MISSOURI.

Extract from a law of the territory of Missouri, concerning weights and measures.

"Sec. 1. The several courts of common pleas [circuit courts] within this territory, shall provide for their respective counties, and at the expense of their said counties, one measure, of one foot, or twelve inches, English measure, so called: also, one measure of three feet, or thirty-six inches, English measure, as aforesaid, to be denominated one yard; also, one half bushel measure, which shall contain one thousand seventy five and one fifth solid inches, to be denominated dry measure: also, one gallon measure, which shall contain two hundred and thirty-one solid inches; one half gallon measure, which shall contain one hundred and fifteen and one half solid inches; and one quart measure, which shall contain fifty-seven and three fourths solid inches; which measures are to be of wood, or any metal the court shall think proper: also, one set of weights, commonly called avoirdupois weights; and one seal, with the initial of the county inscribed thereon; which measures, weights, and seal, shall be kept by the clerk of the court of common pleas [circuit court] in each county, for the purposes of trying and sealing the measures and weights used in their counties." L. M. T. July sess. 1813.

F.

Paris, 16*th July*, 1817.

Sir: I had the honor to receive your letter dated London, the 5th of May last, together with the resolution of the Senate of the 3d of March, 1817, on the subject of weights and measures.

I accordingly enclose, in relation to those of France, *Tarbe's Manuel*, which is considered as the best elementary practical work on the subject; the Annuaire of the Board of Longitude, for the present year, in which you will find a very concise exposition of the principles of the system; the third volume of Delambre's *Base du Systeme metrique decimal*, which explains them at large; the *Connoissance des Tems*, for the year 1816, in which are found, pages 314 to 332, and particularly page 330, some subsequent observations on the pendulum; and some sheets of a journal now printing, which contains an additional note of De Prony, on the ratio of the metre to the English foot.

I have not sent the two first volumes of Delambre's work, which contain the details of the measurement of the meridian, from Dunkirk to Barcelona, as all the results are found in the third volume. The

fourth volume, edited by Biot and Arrago, which, besides other matter, will give the measurement of the meridian from Barcelona to Formentera, its northern extension, to Greenwich, and through a part of Great Britain, and Biot's observations of the pendulum at several places, is not yet printed.

You requested that I might add such observations as might occur to me. The following are made. less on account of their intrinsic value, than because they may assist in explaining some points of the works enclosed.

The *legal metre,* or unit of the French linear measures, is presumed to be $\frac{1}{10000000}$ of the quarter of the meridian, from the equator to the pole, and has been deduced from the actual measurement of the arch from Formentera to Dunkirk, compared in order to calculate the flattening of the earth with the former measurement in Peru. This standard metre, such as it is definitively adopted by law, is equal to $443\frac{296}{1000}$ lignes (or 12th parts of an inch) of the old French measures. Doubts have however arisen whether it is truly the $\frac{1}{10000000}$ of the quarter of the meridian. Delambre, in his third volume, deducing the $\frac{1}{10000000}$ from the measurement of the arch from Barcelona to Dunkirk alone, had made it equal to $443\frac{322}{1000}$ lignes. The calculations of the flattening of the earth, as deduced solely from theory, would give a result nearer to the legal metre. The measurement made in England of an arch of the meridian, would seem to affect those conclusions. But it must be observed that an error of two seconds in the latitude observed, would, in the long arch measured from Formentera to Dunkirk, produce a difference in the length of the metre, equal to the difference between Delambre's calculation and the legal metre; that the same error would, in the much shorter arch measured in England, produce a much greater difference; and that the most candid astronomers acknowledge that, with the instruments now in use, such an error (of two seconds of latitude) is possible. Although, therefore, it seems probable that the legal metre is a little too short, and it seems to be regretted that it was not made equal to $443\frac{3}{10}$ lignes, it is, upon the whole, nearly as exact as was practicable in the present state of science. But, should more extensive measurements of the meridian, greater improvements in the instruments, and a more precise knowledge of all the elements which affect the observations, lead to a still more correct calculation of the true length of the quarter of the meridian, the standard, or legal French metre, would remain as it now is, the unit or basis of the system of French measures, and the only difference would be, that, instead of being, as now presumed, $\frac{1}{10000000}$, it might be found to be $\frac{1}{10000100}$, or some other not far distant fraction of the quarter of the meridian. And this difference would be less than the errors which will always take place in the confection, not of a standard metre executed with every possible care, but of the measures used for common purposes.

For the purpose of ascertaining the ratio of the length of the metre to that of the pendulum, observations have been made with great

care in several places; but those at Paris by Borda and Cassini, inserted in Delambre's third volume, are the only ones (with the exception of those mentioned in the *Connoissance des Tems*, page 314 to 322) which are given in detail by the French writers. Those of Biot and others will appear in Delambre's fourth volume: but their general result is given in the Connoissance des Tems; and it thereby appears that the length of the pendulum making 100,000 oscillations in 24 hours (in vacuo and at the freezing point of water) and referred to the level of the sea, is at Paris, in latitude 48° 50′ 14″, equal to $\frac{74193}{100000}$ of the metre; at Bordeaux, in latitude 44° 50′ 25″, equal to $\frac{74161}{100000}$; and at Formentera, in latitude 33° 39′ 56″, equal to $\frac{74125}{100000}$. The final calculation of Borda for Paris, of the second pendulum (which makes 86,400 oscillations in 24 hours) is $\frac{99385}{100000}$ of the metre, and $440\frac{560}{1000}$ lignes old French measure.

From the metre are immediately deduced, by a descending and ascending decimal ratio, all the French measures, linear, superficial, and of capacity, such as they are found every where, and which require no observation.

The unit of weight, which is in fact the kilogramme or 1000 grammes, has been determined by ascertaining the weight in vacuo of the $\frac{1}{1000}$ part of a cubic metre of distilled water at its maximum of density, which is 4° of the centigrade thermometer above the freezing point, corresponding to 39.6 of Fahrenheit. The experiments, which in every system of measures which may be adopted, are extremely important, were made with great care and skill by Lefevre Gineau; the substance is found in Delambre's third volume, but the detailed account appears to have been unfortunately lost. The old French pound, poids de marc, is $\frac{4895}{10000}$ of the kilogramme.

From the kilogramme or gramme has been deduced, by a decimal ratio, the whole system of French weights, including also that of moneys, in the manner stated in all the elementary works.

The ratio of the English foot to the old and new French measures, may have been lately ascertained in England, where a correct standard metre of platina has been sent. By de Prony's experiments the metre is equal to 39.3827 English inches, and the old French foot to 12.1232 English inches.

It is probable that the second pendulum will, at Washington, be found nearly equal to $\frac{993}{1000}$ of a metre, and to 39.107 English inches.

The great advantages of the French system seems to consist, 1st. In having an unit from which derives the whole by a decimal ratio; 2dly. In having ascertained the ratio of that unit to constant quantities, (the quarter of the meridian, and the length of the pendulum) so as to be able to perpetuate, and, in case of accident, to make new standard measures, perfectly similar to those now established by law: 3dly. In the great correctness of the experiments by which this ratio has been ascertained, and in the similar care bestowed on the confection of the standard measures and weights.

These advantages are, in a great degree, independent of the substitution of new to ancient measures, which has in practice met with

such difficulties. Provided the ratio of the old French foot to the natural and constant measures of the earth and of the pendulum, had been ascertained, that foot might have been preserved, introducing only its decimal subdivision.

I will, for the present, only add, that as one of the first steps, if any plan is adopted on that subject in the United States, must be to ascertain the ratio of our foot to natural measures, it will be important to obtain the observations (not yet printed) of Biot, which, together with those of Borda, give all the information necessary for correct experiments of the length of the pendulum. As we will not probably very soon measure with sufficient correctness a considerable arch of the meridian, the best mode to obtain at once the ratio of our foot, both to the quarter of the meridian and to the French measure, will be to cause a metre of platina to be made here by Fortin. I could, I think, prevail on Mr. Arrago, or some other member of the board of longitude, to superintend the execution. Two have been completed for the Royal Society of London, and one is now on hand for the king of Prussia. The price will be about one hundred guineas. The brass metre made by order of Mr. Hassler, and which belongs to the United States, was executed by young Le Noir, and is not sufficiently correct for the purpose.

I am, &c.

ALBERT GALLATIN.

G.

Mr. Russell to the Secretary of State.

STOCKHOLM, 31st *July*, 1818.

SIR: The duplicate of your letter (No. 3.) of the 25th of May last, reached me on the 15th inst. but the original is not yet received. I have now the honor, in compliance with your request therein expressed, to communicate such information as I have been able to collect, "relative to the proceedings of this country for establishing uniformity in weights and measures," and which was required by the resolution of the Senate, to which you refer.

Not being made acquainted with the object of the Senate in framing that resolution, either by the resolution itself or by your letter, I have felt some uncertainty with regard to the precise import of the term "uniformity," as therein used. It may relate to the proceedings of any foreign country to establish, *within itself*, one sole standard for weights and measures respectively; or it may relate to the proceedings of several foreign countries to establish such a standard *in common*, or to the regulations of each particular country, for pre-

serving the constancy of its weights and measures, by an exact conformity to one or more standards, respectively, which may there exist, and thus, in regard to those respective standards, establishing *uniformity* throughout such country.

Were I to confine myself to either of these constructions, singly, I might err in my selection, and furnish information altogether inapplicable to the real object of the resolution. I have believed it safer, therefore, to communicate all the information which I have collected on the subject, considered in the three points of view above suggested. I shall even present some details, which, although obviously not called for by the resolution of the Senate, may be useful on some other occasion.

MEASURES.

Throughout Sweden there is but one measure, which was last established by the royal ordinance of King Frederick, in 1739. This measure appears, like many others now in use in Europe, to have been originally taken from the human foot and thumb. The Swedish foot is divided into twelve work inches (werktums) or decimally into ten inches. The work inches are used in building, handifraft, and commerce, and the decimal inches for geometrical mensuration.

Long measure.

To the foot thus divided into inches are all the Swedish measures of length, superficies, or capacity referrible:

2 Swedish feet = 1 Swedish (aln) ell; 3 ells = 1 fathom (famm); 5 ells = 1 perch (stang); 36,000 Swedish feet = 18,000 Swedish ells = 1 Swedish mile.

Land measure.

56,000 Swedish square feet = 14,000 ells = 1 Swedish (tunnland) acre of land; 1 tunnland = 2 spannlands = 4 half spannlands = 32 kapplands = 56 kannlands.

Dry measure.

1 Swedish cubic foot = 1,000 Swedish decimal cubic inches = 10 Swedish (kannor) cans; 5,600 decimal cubic inches = 1 tunna (ton) = 2 span = 8 quarts (fjerdinger) = 32 kappar = 56 cans (kannor); 7 cans = 4 kappe.

Liquid measure.

48 cans (kannor) = 1 ton (tunna) = 2 half tons = 4 quarters (fjerdingar) = 8 eighths (attingar); 1 can (kann) = 2 stoopes (stoppa) = 4 half stoopes = 8 quarts (quarter) = 32 gills (ort or jungfrur.)

The can (kann) remains invariably the same in all measures, whether dry or liquid, in which it is used.

The measures of Sweden compared with those of France and England.

According to the official comparison made by the French philosophers Prony, Legendre, and Pictet, between the French standard metre and an English measure, made expressly by Troughton for that object, both these measures being at the temperature of freezing, the French metre is equal to 39.3827 English inches.

See Annals of Chemistry, for June, 1817, pa. 166. (Annales de Chimie et Physique.) Thus:

1 French metre = 39.2827 English inches (log. 5953056)
= 36.9413 old French inches (log. 5675125)
= 40.4175128 Swedish work inches (log. 6065695.)
= 33.6812606 Swedish dec. inches (log. 5273883.)

1,000 English feet = 1026.275 Swedish feet } the proportion between the decimal inches is the same. } (log. 0112639)
974.397 English feet = 1,000 Swedish feet. } (log. 9887361)

1,000 English duodecimal inches = 1026.275 Swedish work inches.
1,000 do. do. do. = 855.229 Swedish decimal inches (log. 9320827.)
1169.276 English duodecimal inches = 1,000 Swedish decimal inches (log. 0679173.)
1,000 English sq. feet = 1053.24 Swedish sq. feet (log. 0225278.)
949.945 do. do. = 1,000 do. do. (log. 9774722.)
1,000 English duodecimal sq. inches = 731.417 Swedish decimal sq. inches (log. 8641654.)
1367.21 English duodecimal sq. inches = 1,000 Swedish decimal sq. inches (log. 1358346.)
1 Swedish acre (tunnland) = 56,000 Swedish sq. feet = 53,169 English sq. feet (log. 7256602.)
1,000 English cubic inches = 625.53 Swedish cubic decimal inches (log. 7962481.)
1 Swedish can (kann) = 100 Swedish cubic decimal inches = 159.864 English cubic inches (log. 2037519.)
1 Swedish meal ton (maltunna) = 5,600 Swedish decimal cubic inches = 8952.41 English cubic inches;
This is divided into 8 fjerdingar, each 700 Swedish decimal cubic inches = 1119.048 English cubic inches.
In commerce there is also a corn ton (sparnmaltunna) = 6,300 Swedish decimal cubic inches = 10,071 English cubic inches;
Which is in fact the same measure of exactly 5,600 Swed. cub. dec. in.
But in the sale of all kinds of grain is added thereto 1 fjerding or eighth part, } 700

6,300

It was formerly the practice in the sale of grain to give *heaped* measure; but as this practice, for want of precision, occasioned continual disputes, it was at length abolished by law, and the addition of one-eighth part ordained in its stead; that is, 9 tons make 8 of corn, and the measure now is not to be *heaped* or *shaken*.

Weights.

Mintvigt, (mint weight.)

The Swedish mint weight, or that with which gold and silver are weighed at the mint and at the bank, when these metals are left for coining, is divided into the *mark, lod, qvintin,* and *ass:* and in respect to the *fineness* of silver, into the *mark, lod,* and *gran* (grain); and in respect to the fineness of gold, into the *mark, karat,* (carat) and *gran,* (grain.)

1 Mark, mint weight, = 16 lod = 64 qvintin = 4,384 (troyske) Dutch ass.

Medicenalsvigt, (apothecary weight.)

1 pound (libra) medicenalsvigt, is divided into 12 ounces, 1 ounce into 8 drams, 1 dram into 3 scruples, 1 scruple into 60 grains.

Thus, 1 libra = 12 ounces = 96 drams = 288 scruples = 5,760 grains = 7,416 (troyske) Dutch ass.

Victualievigt, (provision weight.)

The Swedish victualievigt is divided into *sheppund,* (shippounds) *centner* (hundreds,) *lispund,* and *marks,* or *skulpund.* Thus, 1 *shippound* = 4 *centner* = 5 *lispounds* = 400 *marks,* or *skulpounds.* The *skulpound* is divided into *lod* and *ass,* and 1 *skulpound* = 32 *lod* = 8,488 *ass.*

N. B. The centner is generally omitted in accounts, and one shippound divided at once into 20 lispounds.

Metalsvigt, Stapelstadsvigt, or Exportationsvigt.

The weight which is called by these three names is divided, like the victualievigt, into shippounds, centner, lispounds, skulpounds, lod, and ass, of the same relative value. The skulpound is also divided into fourth, eighth, and sixteenth parts.

Uppstadsvigt, Bergsvigt, and Tackjernsvigt.

These are three distinct weights, but are divided and subdivided in the same manner as the provision weight and the exportation weight.

Application of the several weights.

The use of the *mint weight* is already explained. The *medicenalsvigt* is, as the term imports, for weighing drugs and medicines. The *victualievigt* is that which is most generally and frequently used in Sweden. With it are weighed all kinds of provisions, and all merchandise which is sold within the country, or exported abroad by weight, excepting those articles only which specially appertain to the other sorts of weights herein mentioned. The *metalsvight*, stapelstadsvigt, or exportationsvigt, is applied exclusively to weighing iron, steel, copper, and other gross metals, for *exportation abroad.*

Bergsvigt, also called *Bergshammervigt*, (that is *weight*, or *mine hammerweight*,) is the weight used *at the forges*, for iron intended for *home consumption*, and to be sent into the interior, or to the *uppstads*, which are towns or cities whence no exportation abroad is allowed, there being at those places no custom houses for this purpose. But iron sent to the *stapelstads*, or cities whence exportation abroad is permitted, and at which there are custom houses for this purpose, is weighed *at the forges*, by the *metalls-stapelstads*, or *exportationsvigt.*

Uppstads weight is that used at *these places*, or any where in the *interior* where iron is sold for *home consumption.*

Tackjernsvigt (pig iron weight) is exclusively used throughout Sweden for weighing pig iron to the workmen, who are to forge it into bar iron for account of the proprietor.

Comparative view.

The Swedish *ducat* ought to consist of gold of the fineness of 23 carats and 5 grains, and to weigh gross $72\frac{38}{60}$ Dutch ass, or $62\frac{1}{2}$ ducats make one mark, mint weight, = 4384 Dutch ass (nearly.) One mark of gold of the fineness of 24 carats, gives $62\frac{2}{111}$ ducats. The addition is according to the alloy. The *remedium (mintage)* which is allowed for ducats, is one grain in the fineness, and one ass in the weight, each piece.

The Dutch ducat contains gold of the fineness of 23 carats and 8 grains, with a remedium of one grain per piece, of $72\frac{1}{2}$ Dutch ass. At least 72 pieces, new ducats, ought to weigh 5088 ass, or 159 angels.

Swedish silver coin, whole rix dollars, two thirds rix dollars, and one third rix dollars, consists of silver of the fineness of 14 lod one grain, with a remedium of one grain; one dollar of which ought to weigh gross $608\frac{8}{9}$ Dutch ass, or 36 rix dollars ought to weigh 5 marks mint weight:

1 *whole* dollar, of fine silver $534\frac{8}{9}$ ass.
1 *mark*, mint weight of fine silver, gives $8\frac{126004}{1000000}$ rix dollars.
1 *sixth* part of a rix dollar, or 8 styck, (shillings) half the fineness of silver, 11 lod 1 grain.
1 *twelfth* part of a rix dollar, or 4 styck do. 8 lod 2 grains.
1 *twenty-fourth* do, 2 styck do. 6 lod 2 grains.

All with a remedium of one grain. All, both the whole dollar and the parts of the dollar, have each its full value of silver, and the copper alloy is thereto superadded.

Wrought silver ought to have the fineness of 13 lod and four grains, with a remedium of 2¼ grains. If the fineness be not thirteen lod, the vessel shall not on that account be broken up, but subjected to a double control duty, which makes it cost more than if the silver was of the requisite fineness.

All wrought silver is sold according to the lod victualievigt; and all wrought gold according to its weight in ducats.

The fineness of crown gold, so called, (kronguld) for different vessels, or other articles, is 18 carats. In victualievigt, as above, one skulpound = 8488 Dutch ass. The skulpound victualievigt is divided also into lod and quintin: thus, 1 skulpound = 32 lod, and 1 lod = 4 quintin = 276½ ass. One ounce, or 8 drams, *medecinalsvigt*, are equal to 9 quintin, *victualievigt*, or 1 *libra* = 7416 Dutch ass. *Metallsvigt* is $\frac{4}{5}$ of victualievigt. Thus, 16 skulpounds, victualievigt = 20 skulpounds metallsvigt; and one skulpound metallsvigt = $7078\frac{4}{1}$ Dutch ass.

Uppstads weight has a shippound = 421 skulpounds, metallsvigt, or 20 Uppstadsvigt, = $21\frac{1}{20}$ metalls or stapelstadsvigt. *Bergshammersvigt* has a shippound, = 442 skulpounds, *metallsvigt*, or 20 *bergshammersvigt*, = 22 $\frac{1}{10}$ *metalls*, or *stapelstadsvigt*.

The reason for this difference in the two last mentioned instances, is, that the iron being valued at the uppstads, and at the stapelstads, respectively, at the same price per shippound as at the forges, this factitious increase of weight has been devised to cover the expense of transportation to the respective places of delivery. Tackjernvigt has a shippound = 26 lispounds, or 520 skulpounds, bergshammersvigt, or 20 tackjernvigt, = 26 bergshammersvigt, which means simply this, that the forgeman, for every 26 pounds of pig iron which he receives, must deliver to the proprietor 20 pounds of bar iron. From the *data* here furnished, all the weights of Sweden may be reduced to the victualievigt, or to the (troyske) Dutch ass. I will here observe that the word "*troyske*," which is used in the Swedish publications on weights and measures, applied to the ass, cannot be satisfactorily translated into other languages, as its derivative meaning is lost. Several learned men, however, have told me that they conjecture that it came from Holland. I have therefore translated it "Dutch."

To compare our weights with those of Sweden, the following *data* are believed to be sufficient.

1 skulpound, Swedish victualievigt, = 8848 Dutch ass.
1 pound English troy weight = 7766 do.
1 pound English avoirdupois weight = 9489 do.
1000 pounds English troy weight = 877.7124775 skulpounds, Swedish victualievigt, = 1000 pounds English avoirdupois weight, = 1066.784476 skulpounds, Swedish victualievigt, = 1333.49355 Swedish skulpounds, metalls, staplestads, or exportingvigt.

Uniformity.

With regard to uniformity, in the *first* sense above suggested, you will perceive that it exists in Sweden, in respect to *measures*, so far as

the different uses of those measures will easily admit, as they are all reducible to the Swedish foot, lineal, square, or cubic, divided into 10 or 12 parts or inches. In respect to Swedish *weights*, such uniformity does not exist. The mint, apothecary, and provision weights, rest on foundations entirely distinct from each other, and the principal unit of each is divided into parts, with denominations and quantities peculiar to themselves. Although metalls, uppstads, bergs, and tackjerns weights, have indirectly a certain relation to provision weight, and the principal unit of each is divided into parts of the same names, and relative quantities, yet their diversity is sufficiently obvious from their different uses, and the different standards to which they must necessarily be made to conform. With regard to uniformity, in the *second* sense above suggested, there have been no proceedings whatever in this country for the purpose of establishing it: indeed the policy, as well as the habits, of the people appear to be opposed to its adoption. The only time when this question has been agitated here, was upon the receipt of the circular which the French government, soon after the introduction of the new weights and measures in France, addressed to the governments of other countries, recommending an universal conformity to the new standard. But there never, for a moment, existed here a disposition to accede to that proposition. All the convenience and facilities afforded by the plan proposed could not prevail against the prejudices opposed to it. The people consider their ancient customs as a constituent part of their rights, and would defend their old weights and measures as attributes of their liberty and independence.

The bankers object to the *decimal* system, because it does not readily admit of *thirds*, in which they pretend to have a great interest. And the politicians affect to believe that a diversity in weights and measures is necessary for the preservation of a diversity in governments, and that the adoption of general uniformity would facilitate universal conquest. I will not detain you with a comment on these objections.

With regard to uniformity in the *third* sense above suggested, which consists in preserving the *constancy* of weights and measures, by an exact conformity to one or more standards, respectively, I shall now present to you the regulations of Sweden.

Standard weights and measures are required by law to be kept at Stockholm, in the college of commerce and the mines, in the office of the receiver of the revenue, in the land surveyor's office, and in the City Hall. Standard weights and measures, adjusted by those of Stockholm, are also kept in the offices of the receiver of the revenue, and of the land surveyor in all the other towns or cities, and at all the parish churches in the country. The standard measures, the ell and the foot, are made of brass or steel. The standard weights are made of bronze. It is the duty of the land surveyors, in the interior, to take care that the weights and measures, in their respective districts, conform to the standards, and they are allowed a compensation for so doing.

The land surveyor at Stockholm is authorized and required to inspect the conduct of the land surveyors in the interior, and to see that they do their duty herein.

The measure for all kinds of grain, and for flour, salt, beef, and fish, must be made *square*, to promote the facility of ascertaining their justness, by the foot measure. But *round* measures are allowed for measuring salt, grain, and *other dry merchandise, on board of vessels when imported from foreign countries.* This round measure must be assayed once in every two months during the season of navigation, and while it is used a square measure ought to be at hand, with which to compare it. For measuring sea-coal, charcoal, chalk, and lime, the round measure is generally allowed. The seller is permitted to measure his own goods, but he must then pay the ordinary fee to the public measurer. Square measures are assayed by the foot rule, and round measures, if tight, by water, if not tight, by wheat or flaxseed. All measures for use ought to be made of seasoned wood, and their capacity stamped on the inside. To distinguish between the several sorts of weights, the victualievigt ought to be made round, and the metallsvigt *hexagonal*, and these weights, when used in the stapelstads, are to be marked with a *round* stamp, and, when used in the interior, with a square stamp. The bergshammersvigt, ought to be made triangular.

Steelyards were prohibited in 1638 and 1665, and were again prohibited by the ordinance of 1739, excepting for ore, and pig iron, by proprietors, for their own satisfaction; and also in such places where no regular weights are to be had. The ordinance of 1739, also excepts for the buying and selling of fish, and for domestic use, also for country people who bring their produce to market; in this case, however, the steelyards must be regularly adjusted, and not of a greater power than two lispounds, victualievigt. The large weights for use are made of iron or bronze, and adjusted with solder or lead, on which the stamp is impressed. The small weights are made of bronze; indeed, an ordinance of Gustavus the Third required *all* weights to be made of bronze, but this ordinance has had hitherto but a partial execution. Every person who uses weights or measures not conformable to the standards established by law is liable to a penalty.

I have now furnished all the information of any interest, which I have been able to collect here, relative to weights and measures, and I trust it will be found at least sufficient to satisfy the resolution of the Senate, so far as that resolution has any relation to Sweden.

I have the honor to be, with very great respect,
Sir,
Your faithful and obedient servant,
JONA. RUSSELL.

To the Hon. JOHN QUINCY ADAMS.

LIST OF PAPERS IN THE APPENDIX.

A. 1. Weights and measures used in the several custom houses of the United States.
2. Table of ditto.
3. Note on the weights and measures used in the District of Columbia.

B. 1. Table of the several English statute measures of capacity at different periods, compared with existing standards.
2. Notes on ditto.

C. Note on the proportional value of the pound sterling and the dollar.

D. 1. Mr. F. R. Hassler to the Secretary of State, Oct. 16, 1819.
2. Mr. Hassler's comparison of French and English standard measures of length.

E. Weights and measures of the several states, viz:

E. 1. New Hampshire.
a. Governor Plumer to the Secretary of State, Nov. 21, 1818.
b. Law of May 18, 1718.
c. do. 6 Geo. III.
d. do. Dec. 15, 1797.
e. Governor Plumer to the Secretary of State, Jan. 4, 1819.

E. 2. Vermont.
a. Governor Galusha to the Secretary of State, Jan. 20, 1818.
b. Law.

E. 3. Massachusetts.
a. Governor Brooks to the Secretary of State, Oct. 24, 1817.
b. Secretary Bradford to Gov. Brooks, Sept. 5, 1817.

E. 4. Rhode Island.
Governor Knight to the Secretary of State, Sept. 5, 1817.

E. 5. Connecticut.
a. Governor Wolcott to the Secretary of State, Aug. 5, 1817.
b. Secretary Day to the Secretary of State, Aug. 12, 1817.
c. Law of October session, 1800.
d. do. do. 1801.
e. do. May session, 1810.

E. 6. New York.	*a.* Governor Clinton to the Secretary of State, Sept. 4, 1817.
	b. Law of June 19, 1703.
	c. do. April 10, 1784.
	d. do. March 7, 1788. (Ext.)
	e. do. Feb. 2, 1804.
	f. do. March 24, 1809.
	g. do. March 19, 1813.
E. 7. New Jersey.	Governor Williamson to the Secretary of State, Sept. 20, 1817.
E. 8. Pennsylvania.	*a.* Secretary Boileau to the Secretary of State, Aug. 26, 1817.
	b. Mr. J. Meer to Mr. Boileau, Aug. 20, 1817.
E. 9. Delaware.	*a.* Secretary Ridgely to the Secretary of State, Nov. 7, 1818.
	b. Law of 1704.
	c. Mr. I. Booth to Mr. Ridgely, Oct. 24, 1818.
E. 10. Maryland.	*a.* Mr. Pinkney to the Secretary of State, Aug. 9, 1817.
	b. Governor Goldsborough to the Secretary of State, Dec. 1, 1819.
	c. Law of April, 1715.
	d. do. Dec. 20, 1765.
E. 11. Virginia.	*a.* Governor Preston to the Secretary of State, Aug. 15, 1818.
	b. Law of August, 1734.
	c. do. Dec. 26, 1792.
E. 12. North Carolina.	*a.* Governor Miller to the Secretary of State, Aug. 19, 1817.
	b. Law.
E. 13. South Carolina.	*a.* Governor Pickens to the Secretary of State, Sept. 10, 1818.
	b. Law of April 12, 1768.
	c. do. March 17, 1785.
E. 14. Georgia.	*a.* Governor Clark to the Secretary of State, Dec. 5, 1819.
	b. Law of Dec. 10, 1803.
	c. Ordinance of the city council of Augusta. (Ext.)
E. 15. Kentucky.	*a.* Lieutenant Governor Slaughter to the Secretary of State, Nov. 26, 1817.
	b. Law of Dec. 11, 1798.
E. 16. Tennessee.	Governor McMinn to the Secretary of State, Nov. 24, 1819.
E. 17. Ohio.	*a.* Governor Worthington to the Secretary of State, Aug. 18, 1817.

E. 17. Ohio.	*b.* Secretary McLean to the Secretary of State, Sept. 13, 1817.
	c. Law of Jan. 22, 1811. (Ext.)
E. 18. Louisiana.	*a.* Governor Villeré to the Secretary of State, Sept. 15, 1817.
	b. Law of Dec. 21, 1814.
	c. M. Bouchon's statement of weights and Measures in Louisiana before its cession. (Translation.)
E. 19. Indiana.	*a.* Governor Jennings to the Secretary of State, Sept. 9, 1817.
	b. Secretary New's report.
E. 20. Mississippi.	*a.* Governor Holmes to the Secretary of State, Sept. 17, 1818.
	b. Law of Feb. 4, 1807.
	c. do. Dec. 23, 1815.
E. 21. Illinois.	do. March 22, 1819.
E. 22. Missouri.	do. July, 1813.

F. Mr. A. Gallatin to the Secretary of State, July 16, 1817, on the weights and measures of France.

G. Mr. Jonathan Russell to the Secretary of State, July 31, 1818, on the weights and measures of Sweden.

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DOCUMENTS

IN RELATION TO

THE CLAIM OF JAMES JOHNSON

FOR TRANSPORTATION ON THE

MISSOURI AND MISSISSIPPI RIVERS.

MARCH 1, 1821.

Printed by order of the House of Representatives.

WASHINGTON:

PRINTED BY GALES & SEATON.

1821.

QUARTERMASTER GENERAL'S OFFICE,

February 27, 1821.

SIR: I have received your note dated yesterday, and have the honor to enclose herewith a list of the proposals made for the transportation to be performed on the Missouri and Mississippi rivers during the ensuing year.

Silas Craig was the lowest bidder, but, not being able to furnish the security required, the contract was given by the quartermaster at St. Louis, to Col. James Johnson, the next lowest bidder.

The paper marked B is an extract from the contract.

I am, Sir,
Very respectfully,
Your obedient servant,
THOMAS S. JESUP,
Quartermaster General.

The HON. JOHN COCKE,
House of Representatives.

REGISTER of proposals for transporting Military Stores from St. Louis, to the several posts on the Mississippi and Missouri Rivers, during the year 1821.

NAMES OF PROPOSERS.	Price per hundred pounds.				
	On the Mississippi.			On the Missouri.	
	To Fort Armstrong.	To Fort Crawford.	To St. Peters.	To Fort Osage.	To Council Bluffs.
Henry Jones	$1 49	$2 24	$2 74	.	.
Whiting & Stackpole	.	.	.	4	4
James Johnson	1 50	2	3 25	1 75	3 75
Silas Craig	1 25	2 12½	2 25	2	3 37½
Scott & Rule	1 75	2	3 75	2	3 87½
Anderson & Walls	1 75	2 25	3 75	2 5	3 99 9-10th
Frederick Miller	1 50	2 50	4 50	2	4
Thomas M'Knight	2	2 49	3 49	.	
Pratt, Buthold, & Chouteau	.	.	.	2	4
Jno. & Peter Haldiman	1 50	2	3 50	1 75	4
Clinton & Taggart	2	6	6	2 25	4
Green & Shield	.	.	.	2	4 75
Frederick Dent	1 75	2 75	3 75	2 25	4
Silas Craig	.	.	.	2	3 25
John G. Wilson	.	.	.	2 45	3 95
William Noble	.	.	.	2	4

The above are the bids offered for transporting public stores to Fort Armstrong, Fort Crawford, St. Peters, Fort Osage, and the Council Bluffs.

ASSIS. DEP. QR. MR. GEN. OFFICE,

St. Louis, November 21, 1820.

H. ATKINSON,
Brig. Gen. U. S. Army.
A. M'NAIR,
WM. RECTOR.

B.

"And the said Capt. McGunnigle stipulates and agrees to pay, or cause to be paid, to the said James Johnson, for the due and faithful performance of the several obligations herein stipulated, the following rates of compensation, viz: one dollar and seventy-five cents for each and every hundred pounds transported and delivered at Fort Osage, and three dollars seventy-five cents for each and every hundred pounds transported and delivered at the Council Bluffs; and, also, a proportionate sum for all stores transported to any intermediate post not herein designated."

QUARTERMASTER GENERAL'S OFFICE,

December 16, 1820.

SIR: In obedience to your order dated the 2d instant, I have the honor to submit, herewith, copies of all the papers and documents in my office, connected with the claim of James Johnson, for transportation on the Missouri and Mississippi rivers.

For the convenience of reference, I have divided the documents into sections.

Section No. 1 contains the contract with Mr. Johnson on account of transportation, with the principles of reference.

No. 2 contains the correspondence submitted as evidence on the part of Mr. Johnson.

No. 3 contains the depositions, &c. submitted by Mr. Johnson.

No. 4 is a letter and opinion of William Pinkney, Esq. in relation to the contracts of Mr. Johnson.

No. 5 is an argument of Henry Clay, Esq. in behalf of Mr. Johnson.

No. 6 contains the letters of Colonel Atkinson in relation to the Missouri expedition.

No. 7 contains the depositions, &c. submitted by this department in the case of Mr. Johnson.

No. 8 is a statement of the case, with accompanying notes, submitted to the referees by this department.

No. 9 is an argument of the Attorney General of the United States in behalf of the government, also submitted to the referees.

No. 10 contains documents growing out of the investigation by the arbitrators.

No. 11 is the award of the arbitrators.

No. 12 is the settlement with Mr. Johnson under the award.

I have the honor to be,
Sir,
Your obedient servant,
THOMAS S. JESUP,
Quartermaster General.

The Hon. JOHN C. CALHOUN,
Secretary of War.

No. 1.

Contract for transportation, James Johnson with Brigadier General Thomas S. Jesup, Quartermaster General.

WASHINGTON CITY, *December*, 1819.

Articles of agreement between brigadier general Thomas S. Jesup, quartermaster general, of the one part, and James Johnson, Esq. of Scott county, in the state of Kentucky, of the other part, witnesseth: That the said James Johnson hereby stipulates and obliges himself to furnish two steam boats, calculated to navigate the Mississippi, and its waters, and place them subject to the orders of the said brigadier general Thomas S. Jesup, quartermaster general, by the first day of March next; which steam boats shall be charged with the transportation of provisions and munitions of war, detachments and their baggage, or other articles, to the military posts on said waters, viz: the mouth of St. Peters, near the falls of St. Anthony; the mouth of the Yellow Stone, on the Missouri; and Belle Point, on the Arkansaw; and all other posts, whether intermediate or beyond those enumerated; and, in case this mode of navigation should succeed, and it should be found at any time that the two steam boats aforesaid should not be sufficient to place at proper periods, and when the state of these waters shall admit of it, all the provisions or munitions of war, detachments and baggage, or other articles, then the said James Johnson, on due and reasonable notice, shall provide, *forthwith*, one other, or more steam boats, as the case may require, to aid in the transportation aforesaid; and if, upon experiment, it should be found that any difficulty should exist as to the entire transportation of the provisions and munitions of war, and other articles aforesaid, in this way, then, and in this case, the said James Johnson shall, in a reasonable time, say thirty days, provide a sufficient number of keel boats and transport the same by them.

The said brigadier general Thomas S. Jesup, and quartermaster general, stipulating and promising to furnish a corporal's guard for the protection of each boat thus employed, and the property laden therein; and whereas it is difficult to fix the precise and definite compensation or allowance to be made to the said James Johnson, for the due and faithful performance on his part of the several obligations above recited; and whereas the public service requires that this arrangement should be made at this time, it is agreed, by the said brigadier general Thomas S. Jesup, quartermaster general, and as the representative of the government, that the said James Johnson shall be allowed a reasonable compensation, taking into consideration the hazard attending the navigation of waters at points so distant and heretofore unexplored by such mode of navigation, and the ordinary rates of transportation as the basis for such allowance; and, also, such reasonable and further allowance, as may be equitable and just; provided, that if, in the arrangements and operations of the government, the said steam boats should be detained in their des-

tination, from the want of concentration of the articles, &c. to be transported or otherwise, and not imputable to the negligence of the said James Johnson.

The said brigadier general Thomas S. Jesup, on the part and behalf of the government, further obliges himself to make, from time to time, advances which are reasonable to the said James Johnson on account of his transportation; upon the said James Johnson giving good and sufficient security, for the faithful performance of his several obligations herein stipulated. In case of disagreement or difference of opinion on the part of the said brigadier general Thomas S. Jesup, and the said James Johnson, as to the allowance or compensation other than the ordinary freight, then, and in that case, the matter shall be settled by two disinterested persons, one of whom shall be chosen by each party, and, in case of their disagreement, they shall choose an umpire, or third person, whose decision shall be final.

In witness whereof, we have hereunto subscribed our names, and affixed our seals, this second day of December, eighteen hundred and eighteen, at the City of Washington.

THOMAS S. JESUP,
Quartermaster General.
JAMES JOHNSON,
By Richard M. Johnson, his Attorney in fact.

Signed, sealed, and delivered,
in the presence of
JOHN L. GARDNER, 1st. *Lieut. Artillery.*
THOMAS JOHNSON, *Lieut.* 4th *Infantry.*

Know all men by these presents, that we, James Johnson, William Ward, John T. Johnson, Joel Johnson, and Henry Johnson, of the county of Scott, and state of Kentucky, do make, constitute, and appoint, Richard M. Johnson, of the county and state aforesaid, our true and lawful attorney, to sign our names to any contract which James Johnson may make with the government, (any department of it) the said James as principal, and the said William Ward, John T. Johnson, Joel Johnson, and Henry Johnson, as the sureties of the said James, that he faithfully discharges the obligations to which he may bind himself, in any contract as aforesaid; and the said act of Richard M. Johnson shall bind all the parties hereto in as absolute a manner as if the parties were personally present and signing their respective names.

Given under our hands and seals this day of in 1818.

JAMES JOHNSON,
JOHN T. JOHNSON,
HENRY JOHNSON,
WILLIAM WARD,
JOEL JOHNSON.

This is to certify that the within named persons, viz: James Johnson, William Ward, John T. Johnson, Joel Johnson, and Henry Johnson, acknowledged before me, William T. Smith, notary public for Scott county, Kentucky, that the withinis their act and deed for the purposes therein named.

In testimony whereof, I have hereunto assigned my name, and affixed my notarial seal, this 29th day of October, 1818.

W. T. SMITH,
Notary Public.

Whereas the foregoing contract, or instrument of writing, hath been this day entered into between brigadier general Thomas S. Jesup, quartermaster general, and James Johnson, Esq. of Scott county, Kentucky; and whereas, by the terms of the said contract or agreement, the said Thomas S. Jesup hath engaged to make advances of money from time to time to the said James Johnson on account of transportation, &c. now, therefore, for the faithful performance of the several conditions and obligations contained in the said contract or agreement on the part of the said James Johnson, and for the repayment and final adjustment of all and singular such advances as may be made to him by virtue of this contract, within the period of two years from the first day of March next; we, the undersigned, do hereby bind ourselves, our heirs, executors, administrators, and assigns, jointly and severally, to the said brigadier general Thomas S. Jesup, and his successor in office, in the penal sum of fifty thousand dollars current money of the United States.

In testimony whereof, we have hereunto subscribed our hands and seals, and dated at the City of Washington, the second day of December, eighteen hundred and eighteen.

JAMES JOHNSON,
WILLIAM WARD,
JOHN T. JOHNSON,
JOEL JOHNSON,
HENRY JOHNSON,
By Richard M. Johnson, their Attorney in fact.

Signed, sealed, and delivered,
in the presence of
THOMAS JOHNSON, *Lieut. 4th Infantry.*
JOHN L. GARDNER, *1st Lieut. Artillery.*

January 5, 1820.

The quartermaster general proposes to make to colonel Johnson, for his services during the last season, the following allowances: viz.

For the stores transported from Pittsburgh to St. Louis, the usual freight.

For the stores transported from Louisville to St. Louis, the usual freight, or, if colonel Johnson prefer it, the amount which captain Pickett engaged to pay.

The usual freight from St. Louis to Martin cantonment, fort Osage, and the Council Bluffs, on the Missouri.

The usual freight from St. Louis to the several posts on the upper Mississippi.

The usual freight, agreeably to their tonnage, for all boats sent to the several posts on the two rivers with less than their full loads, in consequence of orders from the commanding officer, or from the quartermaster's department.

To allow him thirty-three and one third per cent. in addition to the usual freight, for the stores and provisions transported to the Council Bluffs.

The amount paid by the quartermaster's department to be assumed as the usual freight.

The claim for detention is considered as entirely inadmissible.

THOMAS S. JESUP,
Quartermaster General.

WASHINGTON CITY, *January* 7, 1820.

Richard M. Johnson being ignorant of the result of a settlement upon the principles expressed in the propositions of general Thomas S. Jesup, is unwilling to do an act which might disappoint the expectations of his brother; and as he does not conceive that it is necessary to adjust that point hastily, in order to future operations, he would deem it more satisfactory to refer the decision as to the price of transportation, to men of honor and high standing, whose ability would enable them to decide correctly; and whose decision would be satisfactory to all concerned, while the parties would be exempted from the necessity of judging in a case which involved their own interest. Having understood that general Jesup has named general William Rector as one of the referees, it will not be improper in Richard M. Johnson to name colonel James Morrison to be associated with him; the third person to be mutually agreed upon by general Jesup and Richard M. Johnson, that no time may be lost on the adjustment. It is also proposed, that the persons to whom it shall be referred, receive for compensation and expenses, six dollars per day for the time spent while together at the arbitration, and six dollars for every twenty miles travelling for that purpose, to be defrayed by the parties mutually.

RICHARD M. JOHNSON.

EXTRACT.

January 10, 1820.

SIR: I have received your two notes, dated 7th instant, and am perfectly willing to refer the claim of your brother on the Quartermaster Department, to major Morrison and general Rector, as you propose. Should those gentlemen not agree on the several points referred to them, I would prefer that *they* select an umpire; if you prefer it, however, I shall make no objection to its being done by ourselves.

The contract contemplates no other reference than the additional compensation which your brother shall receive, "other than the usual and ordinary freight;" but it is not my wish, and I am sure it is not that of the Secretary of War, to confine you to that point. It is, therefore, desirable that you submit in writing the several points which you intend to make, and which you wish to have referred.

I propose that the place of meeting be named by you, but that it be within forty miles of the mouth of the Missouri river. My reason for wishing the reference in that section of the country, is, that the referees may have a complete view of the case, and be able to obtain all the testimony which may be necessary in the course of the investigation.

THOMAS S. JESUP,
Quartermaster General.

Col. R. M. JOHNSON,
Washington.

[NOTE.—Subsequent to the foregoing arrangement, it was determined by the Secretary of War and the agent of colonel Johnson to have the arbitration at this city, which induced a change of the referees originally agreed upon, and the persons named in the following paper were appointed. Convenience to the parties suggested this measure.]

Principles on which the account of James Johnson is to be settled with the War Department, for transportation.

To be referred to the following persons, viz: Com. John Rodgers, general John Mason, and hon. William Wirt.

The claims of James Johnson, thus submitted, are the several items embraced in the account which he has rendered, and on which there may be a difference of opinion, and in addition thereto, a reasonable compensation for the detention of his three steam boats, Expedition, Jefferson, and Johnson, up the Missouri.

James Johnson reserves to himself the right of presenting, within a reasonable time, claims for any other items which he may discover not to be embraced in said account previous to closing the proof.

The original contract, with all the documents now in possession of

the parties, to be submitted forthwith to said referees for their immediate inspection, that they may, at as early a day as possible, settle the principles of the contract, and proceed in the adjustment so far as the evidence already obtained will warrant; and in any case where additional evidence shall be necessary, no time shall be lost in obtaining it.

JAMES JOHNSON.
By Richard M. Johnson, his Agent.

The quartermaster general has received and considered the propositions of Col. Johnson, to refer the subject-matter in dispute relative to the transportation performed by his steam boats and the keel-boats, furnished by him under his contract of the 2d December, 1818, and in reply thereto, will consent to the reference upon the following conditions:

1st. Colonel Johnson shall furnish the quartermaster general with the whole of his vouchers to substantiate the account he has rendered, and a full and detailed statement of all his charges against the Department.

2d. The quartermaster general will return to Col. Johnson, his objections to, and remarks upon, the said account and vouchers. Both these statements shall be laid before the arbitrators.

3d. That neither of the parties, nor their agents, shall appear before the arbitrators in *person*, and nothing in writing shall be placed before them after the account and remarks are exhibited, as contained in the first and second articles of these conditions, unless it be required by the arbitrators.

4th. The claim for detention of the steam boats, the Expedition and Johnson, the first charged at $13,333$\frac{33}{100}$ and the second at $7,200 at the mouth of Missouri, and for detention of the Expedition, Jefferson, and Johnson, up the Missouri, shall be referred.

5th. The charge for transportation, so far as it relates to the operations on the waters of the Missouri only, to be referred.

6th. The award of the arbitrators, or a majority of them, named by Col. Johnson in the paper now referred to, shall be final, and be made as soon as practicable.

THOMAS S. JESUP, *Q. M. G.*
For and in behalf of the United States.

I agree to the foregoing conditions of reference.

JAMES JOHNSON,
By R. M. Johnson, his Agent.

Washington, January, 1820.

[NOTE. Mr. Wirt having declined to act, it was thought advisable to authorize the arbitrators to choose an umpire before the examina-

tion commenced, in order to provide against delay, in case the two first named gentlemen should disagree in opinion. The following note was added to the conditions of reference, and Walter Jones, esq. was the umpire selected.]

The arbitrators are authorized to select a third person to commence the examination with them, if they think proper.

THOMAS S. JESUP,
Quartermaster General.

RICHARD M. JOHNSON,
Agent of James Johnson.

CITY OF WASHINGTON, 4*th April*, 1820.

GENTLEMEN: Having been selected to act as referees in a matter of controversy arising out of a contract entered into between the quartermaster general and James Johnson, you are requested to convene on Friday morning at ten o'clock, at the Department of War, to take such preliminary steps as may be deemed expedient to a final adjustment of the matter in dispute.

With sentiments of respect,
Your obedient servants,

THOMAS S. JESUP,
Quartermaster General.

RICHARD M. JOHNSON,
Agent of James Johnson.

To Com. JOHN RODGERS and
Gen. JOHN MASON.

[illegible] with the steam boat *Expedition*, to induce a belief that the boat would not do to as-

No. 2.

Correspondence submitted in evidence on the part of Colonel Johnson.

MOUTH OF MISSOURI, 30*th Sept.* 1819.

To Richard M. Johnson.

SIR: I have received your's, enclosing the copy of a most extraordinary letter from colonel Chambers, addressed to general Bissell, which, it seems, was communicated to the Secretary of War, or some branch of the War Department, as I understand from your's that you were served with a copy from that quarter, in the way of complaint against me. A very plain statement of facts shall vindicate my conduct and character from this secret attempt to injure my standing with the Department of War: I say secret, because I never had a whisper, or the least intimation from any quarter, that such unfounded and injurious representations were from any quarter, more especially from the commanding officer, under whose control I was, and gentlemen who apparently treated me with friendship: I can assure you that they have had no just cause to act otherwise. I am more astonished that the communication should have emanated from colonel Chambers, for he has been represented to me as an amiable man, and friendly disposed. But, in accounting for the part which general Bissell has acted, I wish you distinctly to keep in your mind, that he is himself a stockholder, as I understand, in the St. Louis bank, which has already swindled me out of $50,000, and, not satisfied with this little morsel, attempts have been made to swindle me out of $50,000 more, by arraying the civil process against me, my steam boats, and government provisions, expecting that by this dishonorable course to coerce me to submission to the payment of money, unjust in the extreme, to support an insolvent and bankrupt institution, rather than be interrupted in my engagements with the government in their great operation in the west; but in which this bank and its coadjutors were sorrowfully disappointed, after their gasconading on the shore, and attempts to board our boat with sheriffs and other officers, &c.

You must also keep in mind a fact known to yourself, that R. H. Price, the president of the St. Louis bank, is the son-in-law of general Bissell.

This letter of colonel Chambers seems to anticipate delay, and he commences in time to exonerate himself and accuse me. He says I was five days going from St. Louis to Belle Fontaine, with the steam boat *Expedition*, to induce a belief that the boat would not do to as-

cend these waters. Now what was the fact? I arrived at St. Louis the 13th day of May, and remained there 2½ days. I reported myself to general Bissell.

Colonel Chambers visited me, but neither of them gave me any orders. I had clothing on board, which I expected to deliver at St. Louis: the wind was also very high. I had some little business with some citizens of St. Louis, and some small repairs to do, all of which induced me to remain this time. After leaving St. Louis, it took about two and a half days to arrive at Belle Fontaine, which was a matter of choice, as I had loaded the vessel much above the burthen with which I intended to stem the current of the Missouri. My object in doing this, was to concentrate the greater quantity of the provisions at Belle Fontaine: this circumstance required caution and prudence; and I determined, under these circumstances, to take time, as the other preparations were in the rear.

Then you see that instead of five days we occupied 2½; for, note, that the letter carries the idea, that the steam boat occupied five running days to Belle Fontaine. The burthen in the Expedition was one-fourth more than an ordinary burthen for such a vessel, and one-fourth more than I intended to carry beyond Belle Fontaine.

Next, this letter of colonel Chambers asserts that there was no accommodation for troops. Here is a matter of opinion as to what is the true meaning of his expression. The accommodation of soldiers and boatmen must of necessity be very different from that which is prepared for ladies in a ball room, or even the silk stocking gentry of your luminous cities, not that soldiers are less meritorious than other classes of our fellow citizens; I should be the last to say, or believe so, for the soldier is his country's stay in the day and hour of danger. But the soldier expects to meet with difficulties and dangers and privations. He neither expects the silver spoon nor the silver slippers. Now, what is the fact in this case? The Expedition contained a plain, nice, level deck, about 120 feet long, and it would have taken a day to have stretched the soldiers' tents on a ridge pole, to be fixed so as to form an awning: a detachment had come on from Louisville, in that way, comfortably. The soldiers appeared much pleased, and so did the officers, with their situation in the cabin. But the letter asserts that the soldiers could have no exercise. This is a matter to be settled between the honorable the Secretary of War and colonel Chambers, whether this mode of travelling would afford exercise enough. This is finding fault with the system; but I should suppose that the Secretary of War was at least as good a judge as colonel Chambers, although the colonel may think otherwise. But the steam boats would not admit of a sufficient defence, and the letter asserts that the troops would be more exposed than a boat propelled by cord. I am at a loss to know how the soldiers on shore, pulling at the cordell, could be more safe from Indian ambuscade than men in the centre of the river, and in a steam boat; particularly when the mattresses could be all thrown up in a few minutes, and we were provided with extra plank, which was intended to be

thrown against the hand rails above, which would form a complete fortification against Indian bullets or balls. This letter of colonel Chambers states also that the crew were without experience, and the boat deficient in anchors, cables, &c. This assertion is contradicted by the oath of captain Andrew Johnson and others, hereto annexed. Upon what ground could any man hazard such round assertions, without giving the evidence or the individuals upon which it was bottomed, when it is a fact that colonel Chambers was a stranger to the crew, or the history and character of the persons who composed it? When this opinion was made, I believe colonel Chambers never sailed one yard in the steam boat. Besides the proof exhibited, I assert, in the most positive manner, that we had a most efficient and powerful crew; faithful, obedient, gallant, and most of them experienced, the captain not surpassed even by colonel Chambers himself.

I am at a loss to develope the causes that could induce a gentleman and an officer of high standing, to make representations so injurious to the interest and standing of an individual who had never felt an unfriendly feeling towards him, but, on the contrary, previous to the events at Belle Fontaine, entertained for him the highest opinion, and felt for him the strongest friendship. I was under the orders and control of Col. Chambers, and, why did he not frankly inform me of the contents of this communication? and, I am sure, he would have found on my part promptness in undeceiving him as to all the points of injurious tendency.

This letter also speaks of the delays of the expedition, and mentions two causes; the determination of the St. Louis bank to interrupt me and the operations of government with civil process, &c. and also from my opinion that I was not bound at my expense to repack and resalt the provisions. As to the first cause, I have said enough in this place, as to the iniquitous claim and iniquitous proceedings of that bank, whose claims and pretensions it seems were countenanced by the commanding officer. The part taken by Col. Chambers, will be developed by the facts which will follow, and by careful perusal of his correspondence with me. As to the second cause, I should be happy to know more in detail as to the manner in which this opinion of mine operated to produce delay.

It was a difference of opinion as to a certain expenditure, but I deny that it was any cause of delay on my part. Upon my arrival at Belle Fontaine, I informed Col. Chambers that I wished to deliver the provisions forthwith; I pressed him both verbally and in writing repeatedly, that I wished the provisions received; but all to no effect. I was always willing and so expressed myself on all occasions, that, although I did not conceive myself bound to repack and resalt the provisions if issuable, sweet, and good, I was willing to furnish salt and hands, and risque the point of expense with the justice of the Secretary of War; and notwithstanding these declarations of mine, the letter states that my opinion on this subject was to retard the progress of the expedition!!

This extraordinary letter states another fact, which subsequent events have proven to be without foundation, viz: that the meat in its present state, meaning while it was in my possession, would not preserve one month! that the brine was bloody and offensive in smell. Upon inspection, it is notorious that the pork and beef were good; both officers of the army and citizens know this fact to be true; the last of my pork and beef was inspected in August, three months after the declaration of Col. Chambers, and it was found to be of most excellent quality, which can be attested by citizens and officers: see the affidavit of Messrs. Andrew and Beryweck Johnson, and Phil Howza, and Levi Craig; and Col. Chambers asserts the fact that he had taken the precaution to weigh some barrels of meat and found them generally deficient, say twenty pounds per barrel, when the fact is, upon inspection and actual weight, the meat in the aggregate overweighed two hundred pounds per barrel, so much as to make at least twelve or fifteen barrels over and above the two hundred pounds to each barrel; see the affidavit of the following persons: Capt. Andrew Johnson, Phil Howza, &c. The letter of the colonel contains another mistake, in stating that the civil authority had attached any part of the property; he might have pointed to barrels and pronounced them attached; but the colonel should have been at least lawyer enough to know that was not a legal attachment without ever touching or coming into contact with the property or getting part thereof in possession. This suggestion in the letter makes it my duty to state some facts at this point previous to the introduction of my correspondence with Col. Chambers; as soon as I arrived at Belle Fontaine and could see Col. Chambers, I made it a point to explain my controversy with the St. Louis bank, and informed him that I confidently expected that an attempt would be made to seize government provisions if landed there. I inquired whether he would be willing to receive them in keels as they were delivered out of the steam boat; that such a course would cut off all embarrassment; that I did not fear the consequence of a trial or investigation before an impartial tribunal; and that I had offered to have the cause decided in any court in the United States except in the territory of Missouri; and that the President and Directors might make choice of the court; and that the provisions should be conveyed to the storehouse or garrison at my expense; Col. Chambers declined this offer of mine, but stated that he would furnish a guard over it on the bank of the river, and a written order was given to Lieut. Downey to guard the provisions as they were placed on the bank, I was satisfied with this arrangement. I understood it distinctly that no difficulty could arrive while the guard was over the property.

We commenced unloading the Expedition, and the guard (*a strong one*) was placed over it. I took a skiff and left the Expedition to meet the Johnson, below us, to hurry her on, and to prevent the crew from being surprised by a visit from the civil officers who were skulking about the premises accompanied with council, as I understood.

As soon as I left the Expedition to captain Craig and his crew, a sheriff made his appearance on the bank, with a verbal order to lieutenant Downey, captain of the guard, from colonel Chambers, that the civil authority was not to be interrupted by the guard. Lieutenant Downey refused to permit the service of the civil process, without a written order from colonel Chambers to that effect; while the sheriff returned for his written order, lieutenant Downey communicated these facts to captain Craig, of the steam boat Expedition, who arrived just as the sheriff appeared with his written order from colonel Chambers to lieutenant Downey. The sheriff was defeated by the firmness and decision of captain Craig, and the government provisions being thus abandoned, by the orders of colonel Chambers, were safely conveyed back to the Expedition.

If colonel Chambers had not pledged himself to guard the property, I never would have consented to have landed a barrel on the shore in that manner. I endeavored to convince colonel Chambers that as the government had advanced me money, and I had purchased these provisions, and brought them to the point of delivery, that they in fact belonged to the government; and in fact this appeared to me a plain principle, that as soon as delivered, or the parties being present, one to deliver and the other to receive, no third party could interfere, and the inspection did not alter the case. It only gave the privilege to government to throw back on my hands such as might be found unsound; and that alone subject to process. I also informed colonel Chambers that the steam boats were chartered to government, and that I disregarded any attachment, or any other process, except the delay, and the danger of having government operations interrupted; and in fact this was my only anxiety. In fact I advised him of my determination at the risque of my life, and that of my crew, not to suffer the view of government to be interrupted by an unjust and persecuting party. When I returned with the steam boat Johnson, that same night, captain Craig informed me of the above circumstance, as to the safety of the provisions; I can assure you I was astonished, and I now determined to resort to written communications, and I herewith send you the correspondence with colonel Chambers during this disagreeable state of things. I had in the meantime received orders to send provisions up each river, and was making my arrangement to send the steam boat Johnson, and should have sent her loaded at this time, at every hazard, if the difficulties had not occurred.

As to the receipt of the provisions in this situation, after the guard was withdrawn, I did not know well what to do. I determined at one time to call on citizens, and inspect the provisions, and have them carried to the fort or garrison, at my expense and hazard, and then abandon the property, leaving the conduct of the commanding officer, and my own, to the judgment of the Secretary of War. Upon much reflection, I again thought it might hazard, in some degree, the views of the government. I changed my determination, and concluded that I would hold the property and boats, free from all embarrassments,

until general Jesup and colonel Atkinson arrived, when, I expected, my difficulty would cease, as your exalted opinion of them both warranted me in thus believing. And in this I was not disappointed, as this insolvent and swindling institution was informed by these officers, that decisive measures would be instituted, if the boats or property were interrupted, that the courts of justice were open, and they must resort to them in the ordinary way.

It will be seen by the correspondence herewith, that colonel Chambers refused to receive the provisions at the warehouse or garrison, nor would he designate any place for me to deliver them, leaving this to my discretion. In the meantime, from rumors and various information, I was advised that the St. Louis Bank party had become much chagrined and mortified at the disappointment, and that they were making preparations to use force. I understood that attempts were made to raise the power of the country and the militia, but that these refused to have any hand in shedding the blood of their fellow-citizens in a civil suit, when the pursuing party had been invited to pursue their remedy in any tribunal in the United States, except in St. Louis. Thus baffled by the just determinations of the citizens and the militia of the territory, who are entitled to great credit, I was informed by various persons and by an officer of the army, that the St. Louis Bank party had determined on an application to the acting governor, for an order to call out the regular force of the United States, under general Bissell and colonel Chambers, to aid the civil authority to take government provisions, and boats chartered to the United States! I could not have believed such a report, that a case so desperate should ever dare to resort to a measure so desperate, and if resorted to, that regular officers should for one moment have so far forgotten the nature of our institutions, and the solemn nature of their obligations to the United States, as to encourage for a moment the idea of encouraging the sheriff, or interfering to aid him, in the execution of a civil process in a civil cause, and when no process had been served, and as yet no illegal resistance made—I say I could not have believed such a state of things, if I had not first received the intimation from an officer, and afterwards the same idea in the correspondence with colonel Chambers.

I had the flag of the United States, and I intended, in case of a conflict, to nail the flag to the standard which supported it, and every man was reconciled to sink rather than surrender. But, although I disregarded threats, or the power of this force, I had determined in my own mind, that it would be better, on a variety of considerations, to fall back to the mouth of the Missouri, where I could rest in peace from a scene of embarrassment and confusion, which has no parallel in our country, under the same circumstances of groundless causes. When I was informed by an officer of the army, that an attack was contemplated from the governor, and that general Bissell or colonel Chambers would execute the orders, if given, I was determined to give them all the information in my power, and leave no pretext, in case of investigation of the subject:

and hence you will see I did enclose to colonel Chambers a copy of my contract with the War Department, and a copy of general Jesup's letter to me, as to the movements of the several corps, as to the expedition. I also requested arms for my men, soon after my arrival at Belle Fontaine. I was furnished with muskets and bayonets, but colonel Chambers refused us flints for the Johnson steam boat. I understand that the morning after I left Belle Fontaine the sheriff came on the shore to demand a surrender, and in case of refusal he had an order from the secretary of the territory, in the absence of governor Clark, to demand the aid of the regular troops. Previous to my leaving Belle Fontaine, I obtained the consent of major Hemstead, who agreed to inspect the provisions at the mouth of the river Missouri.

JAMES JOHNSON.

A true copy.

TH. HENDERSON.

BELLE FONTAINE, *May* 20, 1819.

SIR: The delay which has been occasioned by the failure of the steam boats, and the uncertainty which exists of their being enabled to ascend the Missouri river, at least time enough to save the battalion of riflemen stationed at Martin's cantonment, make it imperiously necessary that a partial supply of provisions should be immediately forwarded in a keel boat, well manned, to that station.

I have, therefore, to request of you to have the supply forwarded as early as practicable, otherwise the command will be totally destitute.

I would thank you to acknowledge the receipt of this requisition.

I am, sir, &c.

T. CHAMBERS,
Colonel commanding U. S. riflemen.

To Colonel JOHNSON,
Army Contractor.

After colonel Johnson's departure to meet the steam boat Johnson, captain Silas Craig wrote to colonel Chambers on the subject of receiving of provisions as they were sent from the boat "Expedition;" in answer thereto he received the following:

BELLE FONTAINE, *May* 21, 1819.

SIR: I am not warranted in receiving any article of any description, unless it is first inspected and reported to me by the Commissa-

ry. I am sorry that I cannot, on this occasion, render you any assistance.

I am, sir, &c.

T. CHAMBERS.
Colonel U. S. riflemen.

To Captain CRAIG,
Commanding Expedition.

STEAM BOAT EXPEDITION,
Off Belle Fontaine, May 22, 1819.

SIR: My brother Joel, who will hand you this, has two steam boats loaded with provisions at this place, and is ready to commence delivering them, in compliance with a requisition made on me, as Contractor, by the honorable J. C. Calhoun: when delivered in the garrison, will they be protected from arrest from the civil authority?

Your obedient servant,

JAMES JOHNSON.

Colonel T. CHAMBERS,
Commanding Belle Fontaine.

BELLE FONTAINE, *May* 22, 1819.

SIR: I do not conceive myself authorized in receiving any provisions until they are regularly inspected and turned over by the Commissary, major Hemstead; but if general Bissell will give his written order on this subject, it then becomes my duty to obey.

I am, sir, &c.

T. CHAMBERS,
Colonel U. S. Riflemen.

To Colonel JOHNSON,
Expedition.

STEAM BOAT EXPEDITION,
Belle Fontaine, May 22, 1819.

SIR: Your note in answer to mine of this morning, which requested to know whether provisions delivered in the garrison would be protected, has been received. You state that you "do not conceive yourself authorized in receiving any provisions until they are regularly inspected, and handed over by the Commissary, major Hemstead." I have been ready for inspection ever since I arrived at this

place; this has been made known. I wished them inspected on board of the boats; in that case none should be delivered but such as passed inspection. I now state that I wish the inspector to come on board and commence inspection: my inspector has been ready from the first moment I arrived.

I feel solicitous that the provisions should be inspected as soon as possible, as it is hourly expected that the expedition up the Mississippi and Missouri will be ordered to commence.

I address myself to you because general Bissell is absent.

Your obedient servant,

JAMES JOHNSON.

Colonel T. CHAMBERS,
Commanding Belle Fontaine.

BELLE FONTAINE, *May 22d*, 1819.

SIR: Wishing to inform you of all the important circumstances in my contract with the quartermaster general, that you may judge with correctness how to act as commandant of the troops now at Belle Fontaine, with respect to the protection of the steam boats Expedition and Johnson, now in the employ of our government, I send by the bearer, captain Boland, my contract with general Jesup; I'll also call your attention to that part of the contract which requires me to place on the first day of March in charge of the government two steam boats, which has already taken place. I further request you will turn your attention to that part of the contract which obliged the government to give a corporal's guard to protect the boats, &c. and from the general meaning of that condition, it is evident that a larger force would be given by the government when deemed necessary. I have offered these remarks with much respect for your consideration; my contract is a plain one, and I wish you to conform to it if you conceive it your duty.

There is now on board provisions, munitions of war, &c. owned by government.

Your obedient servant,
JAMES JOHNSON.

Colonel T. CHAMBERS,
Commanding Belle Fontaine.

BELLE FONTAINE, *May 22d*, 1819.

SIR: I have attentively perused the contract which you transmitted me per captain Boland, which, as you specify in your letter, required of you to have steam boats (two) and subjected to the order of government, by the first day of March. Whether this stipulation has

been promptly complied with on your part, or not, does not become me to inquire into. I have on the occasion received no orders respecting them, and consequently am not warranted in acting in the case; but, I conceive that you have misconstrued that part of the contract which relates to the furnishing guards. I here transcribe the part referred to, viz: " and if on experiment it shall be found that any difficulty should exist, as to the entire transportation of the provisions &c. in that way, then, in that case, the said James Johnson shall, in a reasonable time, say thirty days, provide a sufficient number of keel-boats, and transport the same by them, the said general Jesup stipulating and promising a corporal's guard for the protection of each boat when employed," &c.

Thus, Sir, you will perceive that the commanding officer will only be justified in furnishing guards when you are reduced to the alternative of ascending in keel-boats, but that the steam boats guard themselves. I am, however, not timorous, nor do I wish to assume a disobliging aspect; my object is to facilitate the object in contemplation by the government. Nor will I for a moment hesitate, in rendering you, in a private capacity, any assistance within the compass of my power when it is consistent with the pursuit of my duty. You shall have a guard if you require one; but, bear in mind that they are subjected solely to my orders, and that, in the execution of their duty, they shall be implicitly restricted from taking any part in any contention which may exist between you and the civil authority of St. Louis, and that their orders shall be solely to prevent the property from receiving injury, and that no molestation or interruption shall be given to any civil officer who may be in the supposed execution of his duty.

We will give our aid to support the civil authority, not to oppose its mandates.

I am, Sir, respectfully, &c.
T. CHAMBERS.
Commanding United States Riflemen.

To Colonel JOHNSON.

STEAM BOAT EXPEDITION.

Belle Fontaine, May 23d, 1819.

DEAR SIR: I have this moment despatched a messenger to you bearing a letter which directed you to put the provisions sent for the government in the store house as fast as sent. This moment I received yours which states that the Colonel has ordered that the provisions cannot be put in the store previous to inspection. You will therefore deposit them as near to the store as possible, or as the colonel will permit to do. But, I beseech you, keep a correct account of the quantity and quali-

ty delivered. I will do the same here. We will not send a suspicious barrel of meat. All the other articles there is no doubt of. Captain Craig is ordered to send you hands to help unload.

Yours,

JAMES JOHNSON.

Maj. WHISTLER,
Contractor's Agent, Belle Fontaine.

BELLE FONTAINE, *23d May*, 1819.

DEAR COLONEL: Be pleased to send two hands to unload and store the barrels as they arrive; also, please send about fifteen barrels of *flour*. I expect that quantity will be sufficient to "complete your contract."

Since writing the above, the Colonel [meaning Chambers] sent me word that the property cannot be put into the store previous to being inspected: 12 or 15 barrels of flour had better be sent up.

J. WHISTLER.

COL. JOHNSON.

STEAM BOAT EXPEDITION,
Belle Fontaine, 23*d May*, 1819.

SIR: As being very anxious to discharge the loading of the steam boats, to prepare for the expedition to be ready to start at a moment's warning, Major Whistler was ordered to have teams prepared to receive its loading, and, as it arrived, to put it in the warehouse.

The Major informs me that you had ordered it not to go into the stone warehouse until inspected; indeed, the first load sent to the garrison has returned to the river. Will you have the goodness to say where I may deposit it as I unload it? An answer will be agreeable.

Your obedient servant,

JAMES JOHNSON.

Col. CHAMBERS, *Belle Fontaine.*

BELLE FONTAINE, 23*d May*, 1819.

SIR: As I have heretofore stated that I have no cognizance of any provisions except those which are tendered me by the commissary,

Major Hemstead, I, consequently, am not either to receive or make a deposit of any except those which I receive through the proper channel. The storehouse within the chain would not hold one fifth part of the provisions which you brought: the landing of these provisions I therefore leave to your own suggestions, as I am not warranted in giving any directions whatever.

I expect Major Hemstead here to-day. I have to apologise for forgetting to send you Gen. Jesup's letter.

I am, &c.

T. CHAMBERS,
Col. U. S. rifle regiment.

Col. JOHNSON.

BELLE FONTAINE, *May* 21, 1819.

SIR: I am constrained, from the general aspect which the intended expedition up the Missouri exhibits, to transmit you the subjoined statement of facts, in order that I may be enabled thereby to exonerate myself from any part of the blame or censure which may be attached, in consequence of the tardiness and detention which must be the inevitable consequence of such arrangements. The steam boat Expedition, loaded with provisions and a detachment of troops, with Col. Johnson, the army contractor, on board, reached St. Louis on the 13th inst. and Belle Fontaine on the 18th, a distance of about twenty-five miles, which she accomplished in five days. She is a boat of two hundred tons burthen, drawing seven feet water; her machinery appears to be so feeble that it was with the utmost difficulty that she could reach this place, which you know is not to be compared, in point of rapidity, with many places in the Missouri. She contains no manner of accommodation for the reception of troops, save a platform on the upper deck, where the men are by day exposed to the scorching rays of the sun, and at night to the effects of rain and night dew, and without the means of resorting to any description of exercise to preserve health. I had been officially informed that some manner of defence was to be erected in the event of an attack; but, on the contrary, they are infinitely more exposed than if they were propelling by the cordel. Her crew are very inexperienced, and she is, besides, very deficient in anchors and other appendages indispensable in so arduous and important an expedition; and from the opinion of those who are perfectly acquainted with the channel and depth of the water which the Missouri contains, there exists but little doubt that she can never reach her destination. So soon as the annexed arrangements

were immediately proposed to Colonel Johnson, to have the provisions inspected and turned over to the commissary, in order to expedite; but, in consequence of a civil suit, which has been adjudged unfavorably to Colonel Johnson, which he determined to resist by force, and the opinion which he entertains, that he is not subject to the expense of repacking and rendering the provisions sure from becoming tainted, no progress has as yet been made except the landing of a few barrels, which were immediately seized by a civil officer. It is impossible, sir, from the apparent state of this provision, that it can be preserved, in its present state, one month; consequently, it will all require repacking, and an additional quantity of salt applied to it. I took the precaution to weigh a few barrels, which were, on an average, deficient about 20 lbs. to the barrel, and the brine which I obtained from them was not only high colored, but the smell extremely offensive. I understand that the civil authority of St. Louis is positive, and determined in its intention to arrest the progress of these boats, unless Colonel Johnson adjusts the claims which they have exhibited against him, which will certainly tend to retard the expedition very much, as he appears equally determined to oppose. Thus, between them, I must confess myself much at a loss to define when the expedition will be in readiness to commence a movement. I have considered it my duty to transmit this statement, and pray you to pardon its incoherency, which is occasioned by the haste with which it is written.

I have the honor to be, &c.

T. CHAMBERS,
Colonel rifle regiment.

To Gen. BISSELL.

BELLE FONTAINE, *24th May*, 1819.

SIR: As you informed me that you had no orders to move up the Missouri, and as I have received no other orders than to send a requisition up the Mississippi and Missouri; from this and some other causes, I have thought it advisable to drop down a small distance to prepare forthwith and send on these two requisitions.

I am ready, at a moment's warning, to ascend either of these rivers with the boats now here in the employment of government.

Your most obedient servant,

JAMES JOHNSON.

To Col. T. CHAMBERS,
Commanding Belle Fontaine.

BELLE FONTAINE,
July 4th, 1819.

SIR: I received yesterday, your note dated the 2d instant, by major Sebree: The freight of the stores from Pittsburg and Wheeling has, I am persuaded, been already paid, at all events the quartermaster at Pittsburgh authorized Col. Richard M. Johnson to draw on him for the amount. For the freight of the stores shipped at Louisville, I have instructed captain McGunnegle to pay you here; there is, however, connected with that shipment, a circumstance to which duty requires that I should call your attention. The customary freight from Pittsburg to St. Louis is one dollar and seventy-five cents per hundred; your agent at Louisville, compelled my assistant, captain Pickett, to contract at three dollars per hundred from that place to St. Louis. This, sir, I consider an improper advantage, and you may be assured that government will view it as I do.

It will not be in my power to make you any further advances; half the sum already advanced ought to have defrayed the whole expense of the expedition both on the Missouri and Mississippi. Congress at their last session appropriated one hundred and ninety thousand dollars for transportation, viz: one hundred and forty thousand for the transportation of troops and stores, and fifty thousand for the transportation of provisions; of that sum you have received already upwards of one hundred and eighty thousand dollars, and you have furnished transportation for four companies of men only, and for about three hundred and thirty tons of provisions and stores. I have not yet been informed what are your views of transportation for the Mississippi; it is time that I should know. It is also necessary that I should know the quantity of provisions forwarded to Prairie du Chein, also the quantity you have on hand ready for transportation thither. In all military arrangements the public interest, not the convenience of individuals, must be consulted. The season has so far advanced that delay can be no longer tolerated. If your provisions for the troops on the Mississippi be not in readiness in a very few days, a purchase must be made, and the quartermaster at St. Louis must provide for their transportation.

I have the honor to be,
Sir,
Your obedient servant,
THOMAS S. JESUP.

Col. JAMES JOHNSON,
Belle Fontaine.

P. S. I have authorized Capt. McGunnegle to pay the transportation of the detachment of troops form Wheeling to Belle Fontaine.
THOMAS S. JESUP.

BELLE FONTAINE *July* 4, 1819.

SIR: Your favor of this date was received by captain McGunnegle this evening. I have not received a line from my brother Richard M. Johnson since I have been in this country; of course I am not advised by him that he has drawn for the amount of freight on stores shipped from Pittsburgh. From your letter I presume he has done so; of course do not wish to draw on the same.

The three steam boats here are ready, and I presume will proceed up the river in the morning; I stand in need of money to pay for wood for two or three hundred miles up the Missouri river, which my agent has engaged, having sent one for that purpose several weeks past, and which he has succeeded in buying, as he informed me by letter. The sum you have authorized captain McGunnegle to pay, I presume will answer this purpose; why I wanted a larger sum was to pay hands that will return in a few days from Prairie du Chein, who have taken supplies to that place.

It would have been a great convenience to have received a few thousand dollars for this object, say three or four thousand; I can provide transportation to any amount you may want with very short notice; a quantity of provisions are hourly looked for at St. Louis, and transportation is now provided for the whole amount on its arrival; it will certainly reach the troops long before they need it. On this subject, however, I will give you a statement of the whole amount more particularly to-morrow, provided the boats leave this in the morning; it will be sent back from St. Charles by my brother, who will return to see that all the balance of provisions are forwarded immediately up each river; it will not exceed two days before I return. From the tenor of your letter, I notice, will compel me to reply further to it. I am however sorry this correspondence did not commence a few days sooner, as the steam boats are on the eve of starting.

I have the honor to be, Sir,
Your obedient servant,
JAMES JOHNSON.

Gen. THOMAS S. JESUP.

MOUTH OF MISSOURI, *July* 9, 1819.

SIR: I arrived at this place to day from St. Charles, at which I left the three steam boats, Expedition, Jefferson, and Johnson, and their cargoes all safe and in good plight. I have the pleasure to find each of these boats competent to oppose the rapid current of the Missouri with entire success; nevertheless, I had the mortification of seeing the Jefferson

and Johnson aground; the latter was a float with ease, the former required great exertion (one day and two nights) to effect the same object; I have left orders with the commanders to proceed without delay to the Council Bluffs, I have no doubt but that a speedy trip will be effected, provided the channel is only deep enough, say seven or eight feet. My pilots inform me that the water is deep enough. I have returned to forward the balance of the provisions up each river: a large quantity is here now ready for inspection, and keel boats rea y as it is inspected to load and proceed to the places of deposit up each river. My agent captain Johnson is instructed to apprize major Hemstead of their circumstances; two keel boats also arrived from Prairie du Chein, where they delivered their cargo. The captain of these boats I have not seen yet, as they were at St. Louis discharging a cargo of lead brought down the Mississippi. I trust they will be here to-morrow, when I have ordered them to take in fresh cargoes. I am now as usual subject to your orders. Enclosed I send a statement agreeably to your requirement in your letter of the 4th instant.

With due respect,

Your obedient servant,

JAMES JOHNSON.

General Jesup.

N. B. I have just had the pleasure of seeing B. Johnson, who has just returned from Prairie du Chein, where he saw two keel boat loads of provisions delivered in good order. No news had been received of the arrival of the troops; the other boats were going on well. There had been no want of provisions at that place and at Rock river also. You will oblige me by stating whether it is probable the detachment will proceed to St. Peter's this fall. J. J.

Mouth of Missouri, 9*th July*, 1819.

Sir: After seeing the Steamboats safely arrived with their cargoes at St. Charles, it occurred to me that my presence here, for a short time, would be more important than with them, to hurry off the large supplies of provisions at this place. I should have returned a day or two sooner but for the misfortune of the steamboat Jefferson running on a bar, and much trouble in getting her off.

After the services of the day are ended, 10 o'clock at night, I now proceed to reply to that part of your letter of the 4th which complains against me or my agents. Agreeably to your letter of the 4th, captain M'Gunnegle has been called on for part of the amount of freight from Louisville on public stores; he has not paid any thing, although I confess much needed at this moment. I do not call your attention, however, to it by way of complaint, for I acknowledge more has been advanced than I expected on the transportation contract. I having been absent three months from home, and my brother, Richard M. Johnson, does my business in my absence.

But, Sir, you have connected a circumstance with that freight which requires some attention; you state, that "my agent at Louis-"ville compelled your assistant, captain Pickett, to contract at three "dollars per hundred from that place to St. Louis, viewing it, as you "do, an improper advantage." Capt. Pickett arrived with a large keel boat, loaded principally with stores of clothing, &c. at the head of the falls; our steamboats were then loaded for St. Louis as heavy as was thought prudent; capt. Pickett appeared very anxious to forward these supplies, as they would be needed for the expedition; the captain of the steamboat, by my request, reluctantly agreed to take them, stating that it would overload him; he, Pickett, then was told to bring them to the steamboat; he replied, that the captain of the keel, whom he (Pickett) had employed at Newport to bring them to that place, would not cross the falls for less than 150 or $200, I do not recollect precisely which sum; after much conversation my captain agreed to bring them over himself for a less sum, say for about $125, to which he, capt. Pickett, agreed. The loading being brought, and put on board, there was some difficulty as to the price of freight, as neither of us was acquainted with what was customary, for I did not myself know; your assistant and my agent immediately agreed to ask of merchants of Louisville what was customary; and upon this principle the freight was fixed, by the mutual consent and agreement of both parties. It is then with you to judge whether my agent "*compelled*" your assistant, capt. Pickett, to contract at three cents. The above statement is from my own knowledge of the facts. But, Sir, we have come to no settlement on that freight; I have never urged my price with you, and being convinced of the extravagance, it should have been promptly attended to the proper price. I can assure you, Sir, that I am under no fear of censure from government for that transaction.

You state further, viz: "and you have furnished transportation for "four companies of men only, and for about three hundred and thir-"ty tons of provisions and stores." I can assure you, that it is with some pain, that justice to myself requires a different statement to be made. The steamboats Expedition, Jefferson, and Johnson, took in loads for Council Bluffs of officers and men, and their transportation, ordnance and ordnance stores, ammunition, hospital stores, provisions, &c. about 375 tons for Missouri; and you will recollect, that 4 keel boats have been sent off to Prairie du Chein, with nearly 100,000 rations, which, in gross, will amount to about $\frac{125}{300}$ tons, after the steamboats were loaded, and there was a surplus of flour at Belle Fontaine sufficient to load a keel boat when the steam boats left that place: informed captain M'Gunnegle that I had a keel boat all rigged for sailing, that a patroon had been employed, and had then gone to St. Louis for hands to take the loading, that in a very short time it would be off after the troops. Notwithstanding, he thought proper to give this freight to other boats, stating, they were ready to go and he could not wait. And this day, on my return to this place, as I passed Belle Fontaine, I saw the same boats and their cargo, guarded

by two or three hands, who told me they were waiting for hands from St. Louis to take charge of them.

I have now engaged, and ready to load, keel boats to amount of 170 tons more (making 670 tons) of the provisions now at this place, ready for inspection. No freight has gone up either river, but, upon notice, I could, and would, have sent it off. The transportation of the balance of the troops, which did not go in steam boats, I understand was a matter of choice. It was a great saving to government, for the troops to transport themselves in keel boats already paid for by government, and doing no service. My contract required me to furnish two steam boats. I have furnished three. Provided keel boats were resorted to, notice was to be given, and certainly was expected, or how could I provide them? I have witnessed in this harbor other person's keels loaded with military stores, when, at the same time, I had an empty keel boat lying by the side, and not permitted to load; I, however, did not complain; I now do not complain; if it is your act you have your reasons for it, and these reasons it is not with me to judge the propriety or impropriety of. I wish you rightly informed on subjects relating to my public duty; for that purpose I write you. My mind is occupied very little about the particular price I am to get; I have no doubt of getting a fair price, and that will, I trust, satisfy me. But, sir, success in my undertaking is every thing with me; and if undergoing any privation, and the unremitting exertions of the feeble powers with which Heaven has blessed me, will afford success, success I shall have, and I shall be satisfied. I believe I shall succeed if I do not get embarrassed for a small pecuniary aid. Before your arrival in this country, I had my difficulties. I could find no place to deposite the public provisions by which they would be recognized. They were taken by my orders, or a part of them, to the door of the public ware house at Belle Fontaine, and they were refused admittance; after many attempts to unload and deliver our cargoes, my efforts were vain. After the loss of half a month in this way, it was thought best to fall back to this place, the junction of the two great streams of Mississippi and Missouri, where every thing has gone on smoothly, and constant out-fits of provisions to the different points on these two waters, but still it had the unfortunate tendency of retarding the progress of the provisions. In these difficult times, the day of your arrival was received with pleasure; it was hailed as a joyful day, because I considered the public business would be unshackelled. But, to my mortification, you have only visited me twice, and your tarry the first time was, perhaps, thirty minutes, the second, perhaps, one hour. As respectfully as I could, I requested, most earnestly, for you to stay with me one night. It has not been convenient to this day, neither have I received an order from you, neither verbal nor written, until the 4th, I received your letter in reply to mine, by major Sebree, and that written at Belle Fontaine, in sight of the steam boats, which were preparing to set sail, of course a very interesting and busy day with me. Maj. Sebree informed you that I would be glad to see you; my letter gave you the same informa-

tion. As to personal respect and friendship, it was not wanting on my part, to feel a pride in accomplishing the wishes of government through you, its organ; it was, therefore, desirable to communicate with you freely, and without reserve. As you seem to prepare written communications, I beg you will not feel any reserve in commanding my services for the government, until all is accomplished in my power. I shall remain to effect this object, and will then pursue the steam boats to aid their march to head-quarters.

You will excuse this hasty scrawl; my mind is too much occupied at this moment to dwell, or to put in any particular form, explanatory remarks. I, however, thought it my duty at this moment to say this much.

I have the honor to be,
Very respectfully, yours,

JAMES JOHNSON.

GEN. THOMAS S. JESUP,
St. Louis.

QUARTERMASTER'S DEPARTMENT,
St. Louis, August 27, 1819.

SIR: The Secretary of War has advised me of a large advance having been made to you by order of the President, on account of my Department. Fifty thousand dollars of the sum advanced either has been, or will be, deposited to your credit in the Missouri Bank. All the funds of the Department being thus placed at your disposal, it becomes necessary that the disbursements of transportation be made by you. I have therefore, instructed captain M'Gunnegle, to call upon you for such sums as may be necessary to enable him to discharge the boats which were employed in consequence of the deficiency of your arrangements.

From the large advances made to you, further security would be desirable. The bond which you have executed is for fifty thousand dollars only. In addition to that, I have to request that you execute a mortgage or bill of sale, on the steam boats Johnson and Expedition. Captain Pickett is authorized to receive it.

I have the honor to be,
Sir,
Your obedient servant,

THOMAS S. JESUP.

Colonel JAMES JOHNSON.

MOUTH OF MISSOURI, 28*th August*, 1819.

SIR: Your favor of yesterday has been received. I am not advised by the Missouri Bank that any sum has been deposited in that institution by government, subject to my order.

Every dollar that may be placed at my disposal shall be appropriated for government purposes promptly. I deny, however, that captain M'Gunnegle was compelled to employ any boats on account of deficiency in my arrangements. I am perfectly willing to increase the security for the execution of my contract.

Indeed it is my wish to do it to any amount you require. But you have named property already mortgaged to government, as my brother informs me by letter. I would suggest whether it would not be as satisfactory in Kentucky, as you pass through; there is my property and there are my friends. I pledge myself that it shall be done to your satisfaction.

With great respect,
Your obedient servant,
JAMES JOHNSON.

General THOMAS S. JESUP.

MOUTH OF MISSOURI, 29*th August*, 1819.

SIR: Yesterday in answer to yours of the 27th, I informed you that the Expedition and Johnson had already been mortgaged to government, and proposed giving you further security in Kentucky if you required it; this will inform you, that, if you require my mortgage or bill of sale also in this country for the above property, it will be given with pleasure; no property in anywise under my control shall be withheld if required as security for the faithful performance of any engagements of mine with the government, even to the last cent.

Mr. Herndon will send me, at my expense, a special messenger to let me know your wishes on this subject.

Your obedient servant,
JAMES JOHNSON.

General THOMAS S. JESUP.

P. S. Provided you require a bill of sale or mortgage, please send me such a form as you would approve.

ST. LOUIS, *August* 14, 1819.

SIR: Your communication of this date, relative to sending keel boats to receive the troops and stores on board the Jefferson, has this morning been received. Unless it will be in your power to start those

boats on Monday next, (from my instructions from colonel Atkinson) I will then be obliged to employ the necessary transportation on account of the United States.

I am, respectfully, Sir,
Your most obedient servant,
J. M'GUNNEGLE,
Assis. Dep. Qr. Mr. Gen.

Col. JAMES JOHNSON,
Near the mouth of Wood River, Illinois.

ST. LOUIS, *August* 27, 1819.

SIR: I have been instructed by the quartermaster general to apply to you for transportation, for all provisions and military stores that may be required at the several military posts on the Mississippi and Missouri, during the present year. And have to inform you that there are about forty-five tons of provisions now in readiness, at this place, for transportation to fort Crawford on the Mississippi. Will you be pleased to inform me by captain Pickett, the bearer hereof, if you can furnish transportation for those provisions, and when?

The low state of the river renders it absolutely necessary that they be shipped with the least possible delay.

Respectfully, Sir,
Your most obedient servant,
J. M'GUNNEGLE,
Assis. Dep. Qr. Mr. Gen.

Col. JAMES JOHNSON.

MOUTH OF THE MISSOURI,
August 28, 1819.

SIR: Your favor of yesterday is duly received. I shall hold myself in readiness to comply with any order given for transportation of provisions or military stores, that may be wanted on the Mississippi or Missouri. A boat shall be immediately provided to transport the provisions which you state are now in readiness to ascend to fort Crawford. It shall be done with as little delay as possible.

Your obedient servant,
JAMES JOHNSON.

Capt. J. M'GUNNEGLE.

ST. LOUIS, *August* 31, 1819.

SIR: After having waited until yesterday evening for the boat promised a few days since to transport provisions to fort Crawford, I

called on Mr. Herndon, your agent, to know if you had the boat in readiness to ascend the Mississippi. He replied, that he had but one boat ready, which was intended for the Missouri, and that he was too unwell to give any attention to procuring a boat at that time, consequently I engaged a boat early this morning, and will have it in motion for fort Crawford in the course of this day. One other boat will be required for the Mississippi about the 7th inst., and one for the Missouri, in the course of two or three days from this time, each of those boats will be required to carry from thirty-five to forty tons. I hope the necessary arrangement will be made to furnish those boats within the time specified. I have seen a Frenchman to day direct from Martin Cantonment, who informed me that the steam boat Expedition had reached fort Osage, and was taking out her cargo, being unable to proceed further for want of depth of water; that he had met the steam boat Johnson about thirty miles below fort Osage.

Should the information be correct, a considerable number of keels will be required to forward the cargo of this boat to Council Bluffs.

The Frenchman alluded to, left Martin Cantonment on the 20th instant.

Respectfully,
Your most ob't serv't,
J. M'GUNNEGLE,
Assis. Dep. Qr. Mr. Gen.

Col. JAMES JOHNSON,
Illinois.

MOUTH OF THE MISSOURI,
September 1, 1819.

SIR: Your favor of yesterday is received. You state that you waited until the evening before you wrote your letter (the 30th) for the boat I promised a few days before, (the 28th) and from my not being ready, you had engaged a boat, the 31st, and that it would be in motion, in the course of that day, for fort Crawford. Now, sir, I state, positively, that, on the 29th (Sunday) I sent a fifty ton boat which might have been partly loaded on that very day and completed on Monday the 30th. Mr. Dorr informed me that he was about to receive the loading from major Hemstead to load the boat forthwith, and that you countermanded the order; so that I am disappointed in the arrangement, having engaged a patroon and number of hands for that very service. When certain information is received, that the Expedition and Johnson are discharging their cargoes short of the Council Bluffs, arrangements will be made to have their loading taken in keel boats.

Your most obedient servant,
JAMES JOHNSON.

Capt. J. M'GUNNEGLE.

St. Louis, *September* 21, 1819.

Sir: I have now in readiness for transportation to forts Armstrong and Crawford, on the Mississippi, about twenty tons of provisions and military stores, and will have, within eight days from this time, about twenty-five tons for transportation to the Council Bluffs. The near approach of winter will admit of no delay in forwarding those supplies. My duties will compel me to visit Belle Fontaine this week. I must therefore request that you will specify the day on which you can furnish a boat for the Mississippi, that the necessary arrangements may be made for loading, should I be absent when the boat reports.

Respectfully, Sir,
Your obedient servant,
J. M'GUNNEGLE,
Assis. Dep. Qr. Mr. Gen.

Col. James Johnson,
Illinois.

St. Louis, *September* 21, 1819.

Sir: Your letter of the 1st inst. was duly received. Having been much engaged at the time this letter came to hand, and deeming an acknowledgement quite unimportant to you, I deferred a reply until more at leisure; nor should I now reply, but to correct the statements made by you in that letter.

Your assertion relative to the 50 ton boat, which you positively stated to have been "in readiness to take in a load on the 30th" ult. and that I had prevented Mr. Hemstead from taking on that day, I beg leave to correct. A boat of yours was reported to me to be in readiness to take in a load on the 31st ultimo; on more particular inquiry of your agent, Mr. Dorr, in relation to this boat, I found her deficient in every respect for a voyage; and, in proof of what I have stated, your agent, Mr. Snell, can inform you that an attempt was made to haul her out of the water on the first inst. for the purpose of caulking her, in which attempt they failed for want of force: that she was afterwards partially loaded, and that one hand was employed several days in bailing to prevent her filling: that this loading was afterwards put on board another boat, and that some six or eight days after, the boat was hauled out to be caulked, and was not prepared to receive a load until the 20th inst. on which day she was loaded.

That you have overrated the tonnage of this boat is self-evident, from her being able to receive but 300 barrels of flour, which is less than 33 tons.

In relation to my preventing Mr. Hemstead from loading the boat, I must inform you that it is not Mr. Hemstead's duty to load boats, and that, in this instance, he assures me he had not, directly nor in-

directly, interfered; therefore I must infer that your information has been incorrect in this particular.

With due respect, I am, sir, your obedient servant.

J. McGUNNEGLE, A. D. Q. M. G.

Col. JAMES JOHNSON,
Illinois.

MOUTH OF MISSOURI, 21*st September*, 1819.

SIR: Your two favors of this date, by Mr. Snell, are duly received. I have a thirty-five ton keel boat, now lying in this harbor, just from St. Peter's, on the Mississippi. Mr. Snell comes down with her in the morning, to receive the loading named in yours forthwith for the Mississippi. A boat will be ready to receive that for the Council Bluffs in the time required. Your second letter, in reply to mine of the 1st, is now before me, in which you attempt to correct statements made by me concerning a keel boat, &c. That boat I purchased of Major Hunter, late of St. Louis, a gentleman of respectability and standing, for a fifty ton keel boat, all rigged and in good order for a voyage. She lay several days in this harbor, and while empty, did not leak but very trifling, and had every appearance of a good boat, and in fact is one. I did not expect she wanted any repairing; she was sent to St. Louis at the time specified; she was so reported to you, that, without your knowing, or even myself, or any agent of mine, at that time, that she wanted repairs, or that she was less than fifty tons, you give the loading to another person. It is very true, after this period, when we were about putting different loading in her, that she was discovered to be leaky and wanted some overhauling, which has been accomplished; this information I received from Mr. Snell. From your statement, as well as Mr. Snell's also, I do acknowledge I have been deceived as to her tonnage, and shall certainly refuse to pay as much for her as was contracted to be paid. The only objection you made, however, at the time, was, that she was too large for the rapids in the Mississippi; that she must go up the Missouri; of course, upon loading her, she is found to be a very suitable size for that very loading which was given to another. My agent, Mr. Snell, had the offer of other boats, and could have procured them as fast as you wished to furnish cargo, at a very short notice. I had hands at the same time employed for the voyage, and on account of losing that freight, caused considerable extra expense to be paid them.

I beg leave to remark, further, that Major Hemstead has attended to the loading of most of the public stores which I have shipped this year, which is very well known to be a very large amount.

Yours, with due respect,

JAMES JOHNSON.

Capt. McGUNNIGLE.

St. Louis, *October* 4, 1819.

Sir: A boat, containing a quantity of clothing for the 5th infantry, has just reached this place from the mouth of Ohio. It is highly important that this clothing should at least reach Fort Armstrong, if not Fort Crawford, this fall, as it can be distributed from either of those points by sleighs on the ice, during the winter. I must therefore require of you a small boat, say of 15 or 20 tons, for transportation of this clothing. If in your power to furnish a boat of this description forthwith and well manned, it will be found very useful in assisting your provision boats, now ascending over the rapids of Demoin and Rock river. Please to advise me on this subject by bearer.

Respectfully, sir, your most obedient servant,

J. McGUNNEGLE, A. D. Q. M. G.

Col. James Johnson,
Illinois.

St. Louis, *October* 6, 1819.

Sir: The two boats owned by S. Belding in which I shipped a quantity of provisions for Fort Crawford on the 31st August, have both returned to Gillam's ferry, opposite the mouth of the Missouri, being unable to cross the Demoin rapids in consequence of the desertion of several hands, and the sickness of others, leaving the boats with half crews. Mr. Belding is also very unwell and unable to use any exertion at this time towards employing fresh hands to return with those stores, although I have been under the impression since 3d instant, till this moment, that he had engaged other hands and returned to proceed with his boats, otherwise, you should have had earlier information on this subject. I have therefore to request that the boat applied for on the 4th instant, to transport clothing, be appropriated to the convenience of those provisions, and that another boat of 25 or 30 tons be immediately procured for the conveyance of the balance of Belding's load to Fort Crawford.

Be pleased to inform me by the bearer, (a special messenger,) if in your power to ship and push off those provisions within two or three days, as existing circumstances render it absolutely necessary, that those provisions should be pushed up with all possible speed.

I have written to Maj. Marston, the commanding officer at Fort Armstrong, (by Burk, your patroon, who left this a few days since,) setting forth the necessity of his sending about 20 men to Fort Edwards to assist the boats now ascending over the rapids of Demoin; and have informed him that unless some plan of the kind be immediately put in execution, that the troops must be in a starving condition before spring. I will also apply this day or to-morrow to Col.

Snelling, the commanding officer at Belle Fontaine, for an order to Maj. Marston to have the number of men above mentioned immediately ordered to Fort Edwards; and, in the event of obtaining this order, will despatch an express with it (on horseback) to Fort Armstrong.

I have enclosed herewith the bills of lading on board of Belding's boats. Should you ship those provisions, please have the bills of lading signed, enclose two of them to Maj. Marston, deliver one to your patroon, and return one to me by bearer; if you do not ship them please return all the bills.

Respectfully, Sir,
Your most obedient servant,
J. M'GUNNEGLE, *A. D. Q. M. G.*

Col. James Johnson,
Illinois.

P. S. In the event of your shipping those stores, should the number of packages delivered Mr. Belding prove deficient, please give me the earliest information, that measures may be taken to secure the United States by attaching his boat and goods.

J. M'GUNNEGLE.

St. Louis, *October* 8, 1819.

Sir: The enclosed letters and bills of lading are copies of those sent you yesterday, which the bearer informs me he lost in crossing the river opposite the mouth of Missouri.

I have requested Col. Snelling to order Maj. Marston to detach a subaltern and twenty men, with two Mackinaw boats, to the foot of the Demoin rapids, to assist all the provision boats now below in passing those rapids; also, to render every assistance in his power to those boats in passing the rapids of Rock river. This request will be complied with, and the order forwarded by the bearer, who is well mounted, and will proceed to Fort Armstrong with all possible despatch.

I will thank you to deliver the bearer all the communications for the upper posts, (sent by Mr. Hemstead on the 6th instant,) if they have not been forwarded before this reaches you; and in the event of your forwarding the supplies on board of Belding's boats, please have three of the enclosed bills of lading signed, and return them to me at Belle Fontaine by the bearer.

Respectfully, Sir,
Your most obedient servant,
J. M'GUNNEGLE, *A. D. Q. M. G.*

Colonel James Johnson, *Gilham's Ferry,*
Opposite the mouth of Missouri.

P. S. Since writing the foregoing I have seen Mr. Davenport, who will leave this to-morrow for Fort Armstrong with his boat. He will deliver you 13 tierces and six boxes of clothing, per bills lading enclosed herewith. Those packages are the last that will be forwarded this season. Please have those bills signed and returned by the bearer.

J. M'GUNNEGLE, *A. D. Q. M. G.*

MOUTH OF MISSOURI, *October* 9, 1819.

SIR: This evening I received your two letters of the 6th and 8th current, enclosing bills of lading for provisions, shipped 31st August by L. Belding, also 13 tierces and six boxes of clothing delivered to Mr. Davenport. I have viewed with considerable concern the return of Mr. L. Belding's boats, ladened with government stores. Mr. Belding arrived at this place while I was in bed sick. I understood he was entirely discouraged from making any farther attempts, and expressed some wish that I should undertake to freight his cargo to its place of destination, but he went to St. Louis before I saw him. I did think, rather than they should remain, I would do it; but intended that captain Burk should take the command with his brother and another careful and energetic man he had with him. But Mr. Belding did not return to his boat, nor any agent to make any propositions or arrangements, until this evening. My boat had got out of this place yesterday evening after being detained several days for the arrival of Mr. Belding to obtain the 4 or 5 tons of freight which you had given your order to captain Burk to obtain; but at length, dispairing of his arrival, the boat had to proceed without it, although but little more than half loaded. All the communications sent by Maj. Hemstead have been forwarded by captain Burk, or they would have been delivered to the bearer according to your request. I have just informed the young man who came this evening to represent Mr. Belding, that I had orders from you to take charge of the public stores on Mr. Belding's two boats now lying in the harbor; he agrees to deliver them over. In the morning I shall have them unloaded and make immediate arrangements to forward them to their place of destination. The bills of lading shall be signed, and sent as directed by you when done; there is, however, some difficulty, as Mr. Belding has left some of his cargo some distance up the Mississippi. I will thank you to give me some advice; the captain of a boat could not receipt for any article in good order before he receives it. The bills of lading for the property with Mr. Davenport will also be disposed of as you direct; it would have been of great importance to have received those communications from you two days or even one sooner. I am much pleased with the precautionary arrangements of getting

a force of 20 men to the foot of the lower rapids to aid the boats in crossing. Should there be a deficiency in the number of packages it shall be reported to you immediately.

With due respect,

Your most obedient servant,

JAMES JOHNSON.

Captain M'GUNNEGLE.

MOUTH OF MISSOURI, *October* 13, 1819.

SIR: Mr. Belding arrived at this place on the evening of the same day that you were here, but for want of hands I could not overhaul the boats until my hands arrived, part of whom came to this place last evening. This morning, before breakfast, I had one of the boats overhauled, and find that the first tier of barrels of flour, and some boxes of bacon, are damp from the water rising on the bottom of the boat; there is not a great deal of the loading in this condition, but do not feel justified in receipting for the whole in good order, and Mr. Belding is unwilling to deliver any unless it is received of him clear of any difficulty. I am unwilling to receive and receipt for it according to its condition; your order on this subject, either verbally or by letter, is necessary. I have made great exertion to get hands, and they are coming in fast, so that no doubt remains of my being off very shortly, say two or three days, if the difficulty is settled. I have purchased two boats for the purpose of taking up the freight.

Respectfully yours, &c.

JAMES JOHNSON.

Captain McGUNNEGLE.

N. B. If convenient your presence is desirable.

ST. LOUIS, *October* 18, 1819.

SIR: Your favor of this date has just come to hand. I have written to Mr. Belding requiring him to deliver you the provisions on board his boat without hesitation, and hope no further delay will take place in the shipment. It cannot be expected that you will receipt for those provisions in any other way than they may be actually delivered. Mr. Belding will be held accountable to the United States for any damage or loss that they may have sustained, until turned over to you. Should he hesitate on delivering you those stores, you are hereby authorized to take them per force. I will hold myself ac-

countable for the consequences of the procedure, should it be found necessary to resort to forcible means.

Respectfully, your obedient servant,

J. McGUNNEGLE,

Assistant Deputy Quartermaster General.

Col. JAMES JOHNSON,
Gilham's Ferry, Illinois.

P. S. I have assumed payment on your account for the articles charged in the enclosed bills, amounting to $24 12, which were purchased this morning by your patroon for use of the crew for the small boat.

J. McGUNNEGLE.

MOUTH OF MISSOURI, *October* 16, 1819.

SIR: I have herewith enclosed you the bills of lading of Belding's cargo, also that shipped by Mr. Davenport, all regularly signed. I have enclosed copies to major Marston at Fort Armstrong, as directed by your letter of the 6th. I also enclose you a copy of my receipt to Mr. Belding, and his order to me, so that you may have a whole view of the subject: they speak for themselves without comment from me. I have had some difficulty with the boats I purchased from him, but have them ready to go on, except a few hands, which the French patroon will bring on this evening; nothing prevents the boats from going on but this circumstance.

With great respect,

Your obedient servant,

JAMES JOHNSON.

Captain McGUNNEGLE.

N. B. I would have had Mr. Belding's order directed to a particular person, but he informed me that he had fastened it in a house or cabin, and got the promise of a person to have eye over it, but had forgotten his name.

MOUTH OF MISSOURI, *October* 16, 1819.

Received of L. Belding the following packages, which he received of Capt. J. McGunnegle, A. D. Q. M. G. on the —— day of ——, 1819, which was to be delivered by him to assistant commissary o

subsistence of Fort Crawford, Prarie du Chien; but unfortunately had to return to this place from the rapids, viz:

111 bbls. pork, beef, and vinegar.
86 bbls. flour.
3 tierces vinegar.
18 boxes of bacon.

Also, received of said L. Belding, an order to receive the following packages at Louisianaville, which was stored by him at that place, viz:

48 bbls. of pork, vinegar, &c.
39 do. flour.
20 do. salt.

Twenty barrels of the above named flour, which lay on the bottom of the boat, has frequently been wet by the water rising in the boat over the timbers, and six boxes of bacon; but all the boxes of bacon except three are considerably wrecked, with the top planks loose, of course not in good order. The bottoms of the pork and vinegar barrels, also the three tierces, have frequently been wet from the water in the bottom of the boat, but the contents of the barrels not injured, except the leakage of part of the vinegar.

JAMES JOHNSON.

A plan of operation suggested to prevent loss of time in the transportation next year.

First, let active and efficient officers be ordered to Louisville, Kentucky, early in the month of February, say the first day, to inspect and receipt for provisions destined for the upper Mississippi and Missouri. This duty might be performed by one efficient officer.

The condition of the receipt for the provision, upon inspection, would be that, in case of disaster previous to its arrival at St. Louis, or mouth of Missouri, the loss should be the contractor's.

This inspection would enable the steam boats and keels destined for the Yellow Stone, to make fair experiment, without interruption. The present year has proved the vital importance of such a measure. The steam boat Expedition arrived at Belle Fontaine about the 17th of May, and the inspection, resalting, and repacking, &c. was not finished within a period less than sixty days, during which time, with good water, and favorable circumstances, such a boat as the Expedition would have ascended the Missouri one thousand miles, and it is well known that in such an enterprise time is not only important, but becomes doubly so by this fact, that about five months in the year the cold is too intense to operate in this region, and of the balance of the year there is a rise in the waters, which gives only about five months, and it is indispensable to make use of those months, which commence as soon as the ice of the winter breaks up.

Another year, let it be recollected that the provisions for 1820 have not only to go over the whole ground that has been occupied the current year, but to proceed almost double the distance, if the highest point is reached the next year, 1820; and whoever undertakes the supply of rations, upon which the safety of the establishment depends, has an awful responsibility, and should be granted any facility which the War Department can give.

It is positively believed, from the actual experiment of the present year, and from the nature of things, that this precaution cannot with safety be dispensed with. In fact, to depend upon unloading the steam boats and keels, repacking and resalting the provisions, at any point other than the place where the provisions are first prepared, will jeopardise the march and progress of the troops in 1820.

There is no necessity for overhauling, repacking and resalting; the provisions can and should be made sufficiently good in the first place: it only requires that the government should have the evidence of its goodness. It is confidently ascertained that the provisions of the present year would have kept equally well without this expense and trouble, and which consumed so much time in overhauling, repacking, &c. and although the whole detention cannot be ascribed to this single operation, yet it did take up so much time as would have hazarded the troops if they had been at Yellow Stone, or even far short of that point. This is not all, for it will not do for one steam or keel boat to remain for any other; she must go self-existed, and independent; a self-moving machine! and thus some of the boats must be freighted first, and can proceed on the expedition; and, in case of accident with some of the boats, this process will secure us against any casualty. The object requires the most vigorous attention of the Secretary of War, while the most beneficial results are promised. I can see no objection to the favor asked by the agent and contractor who is charged with the transportation.

One officer can act as inspector, commissary, and quartermaster; if one cannot, a sufficient number of officers should be stationed at Louisville, and the contractor should be advised of the time of their arrival, so that there might be a perfect co-operation, and no loss of time, as the inspection might have to take place at different points on the Ohio and Kentucky rivers. The plan contemplated is this: to carry the whole amount of provisions in flat bottom boats and keels to the mouth of the Ohio, where the steam boats and keels will all be loaded for their final destination, for the steam boats are in the upper waters, and can descend to the mouth of the Ohio river as soon as the provisions can be concentrated there; the same of keels. If, however, any of the steam boats or keels destined for the expedition should be in this quarter, they will be loaded for the final journey.

An answer to this plan is requested as soon as convenient. All of which is respectfully submitted.

JAMES JOHNSON.

Hon. JOHN C. CALHOUN,
Secretary of War.

GREAT CROSSINGS, *November*, 26, 1819.

SIR: Having been engaged in the discharge of a high trust, confided to me by the War Department, I consider it my duty to place before the Secretary of War a statement of facts that have occurred in the discharge of my contract with said department, and also to place before you the manner, and to what extent, the said contract has been complied with; and to inform you of the causes that have operated to prevent me from complying with the views of government in every particular. In doing this I shall not attempt to screen myself from public scrutiny, in any transactions in which I have been engaged, nor shall I bring before you any statement, with a view to implicate others. What I state shall be solely in defence and justification of the course I have pursued in the fulfilment of this important duty.

After having entered into written contracts, to furnish provisions and transportation for the same, and all other military stores, up the Mississippi and Missouri rivers, to aid in accomplishing the grand and noble objects of government, in establishing posts at the St. Peter's and Yellow Stone rivers, my feelings were doubly enlisted for its success. As a citizen, having no participation in the execution of the noble enterprise, I could not not have looked on with indifference. But becoming the humble instrument to aid in its accomplishment, at once gave me feelings never before experienced.

I therefore commenced the work according to instructions from the War Department. Purchased provisions, and as I then supposed, a full supply, as I exceeded in my purchases the quantity directed and ordered by the department, viz: 670,000. I engaged five steam boats:—the Expedition, Jefferson, Calhoun, Johnson, and Exchange, all of which, with the exception of the Calhoun, left Louisville the 2d May, with very heavy cargoes; and also four large flat boats, which were ordered to go to the mouth of the Ohio, and there remain until the steam boats, or a part of them, could return from headquarters to the mouth, and receive their contents.

The steam boat Exchange was designed only to ascend to Belle Fontaine and return home. The others were intended for the use of government if required. Two, I felt particularly bound to furnish, according to my contract with the quartermaster's department. And the reason why I made greater preparations for transportation was, I knew we were subject to many accidents in this hazardous enterprise, and from letters and statements from the quartermaster's department, and my knowledge of the number of rations to be conveyed, I was convinced that even four steam boats were not too many, and I was conditionally bound to furnish more than two if necessary.

Here I beg leave to state the cause of my not leaving Louisville at a more early period. The steam boat Johnson had gone on her way to New Orleans the autumn before, and ran aground near the mouth of the Ohio, where she remained until the beginning of winter, and the ice prevented her return until late in the spring. I found she made good progress against the current of the Ohio; to make her complete, and clear of doubt for the Missouri, I ordered, in her ab-

sence, an additional boiler. As soon as she arrived at Louisville, we commenced her repairs; furnished her with a third boiler and a new fire bed. These repairs consumed more time than I had anticipated, although we progressed with the work during the whole twenty-four hours, with the exception of a few nights, and then we never ceased our labor until midnight. The Jefferson was also longer in getting off from Wheeling than could have been expected, and the Calhoun was not completed in the time the workmen had induced us to believe she might be. These several causes brought the second of May, when we set sail. The Jefferson unfortunately broke her piston head, below St. Louis, the Calhoun failed in her boiler, but the Expedition, Johnson, and Exchange, arrived safe at St. Louis. The Expedition arrived on the 12th May, and lay two days and an half to make some repairs, and for other purposes, and proceeded to Belle Fontaine, where she arrived the 16th or 17th; and the Johnson arrived about the 21st, and the Exchange at St. Louis about the same time. All hearts seemed now to rejoice, and we considered this an experiment against the current of the Missouri. The Expedition had taken to Belle Fontaine one-fourth more than her ordinary tonnage, through a current universally admitted by navigators of that river, as difficult and rapid as any that we should encounter. The citizens, generally, partook of the joy, except a faction at St. Louis, composed of the friends of the poor old broken St. Louis Bank, to see a steam boat, carrying more than two hundred tons of actual cargo, ascending their waters.

General Bissell and colonel Chambers visited me at St. Louis, apparently friendly disposed. I reported myself to general Bissell, who declined giving me any orders whatever, but left with myself to pursue the instructions I had received from the War Department, which was, to deposite the provisions at Belle Fontaine.

On my arrival at that place colonel Chambers, the commandant of the garrison, came on board, and I embraced that opportunity to have a conversation with him on the subject of the provisions. I informed him that he was already apprised that the officers of the St. Louis Bank would embarrass me, if possible, by attaching the steam boats and provisions; and, although I feared no personal injury from their attachment, nor any ultimate loss, yet, it would a tendency to delay the expedition, and I could not think of any delay whatever, arising from my personal matters. I informed him that I wanted to discharge the loading immediately. That I considered it government property, as it was purchased by advances made to myself as contractor, and that it would be worse than cruel for the objects of government to be perverted on account of individual controversies. That it would serve the government as well as myself, if he would receive the cargo in keel boats along side the steam boat. And that the inspection should be at my risque and the carriage to the garrison at my charge, and that I would give any guarantee to that effect that he might require. He declined doing any thing in this way, and I then prepared to inspect the provisions on board, as we had plenty of

room. He did not object to this, but proposed, that if I would unload the provisions on the bank of the river, he would place a guard to protect them, to which I immediately consented, and commenced landing the provisions as rapidly as possible. I then left the steam boat Expedition, and returned below in a small craft to meet the Johnson, which had passed St. Louis. I met her and returned to Belle Fontaine, with her, that night. In my absence the sheriff arrived from St. Louis, and wished to attach the property on shore. But the officer of the guard, lieutenant Downey, would not suffer any man to approach it. The sheriff immediately obtained of colonel Chambers a written order (as lieutenant Downey informed me) to withdraw the guard. It was withdrawn. But captain Craig of the Expedition, getting information of the proceedings on shore, immediately went with several hands and two keel boats to return the provisions to the steam boat. They commenced reloading when the sheriff approached. Captain Craig prevented his levying the attachment by presenting a pistol. In a short time he had every thing on the boats and floated them to the side of the Expedition, in the middle of the river, where she lay at anchor. Being informed of this transaction, I determined to have my business on a firmer basis than mere verbal arrangements. I therefore addressed colonel Chambers by letter on the subject, which will be seen by reference to document No. 1, containing my letters to R. M. Johnson, and accompanying papers.

Any thing, sir, which I can here say cannot shew more strongly my desire to further the views of government; my solicitude increased in proportion to the difficulties I had to encounter. It may be proper here to remark that a controversy arose between major Hemstead, the commissary, and myself on the subject of inspecting the provisions; he contended that it was my duty to resalt and repack every barrel of beef and pork. I informed major Hemstead that this would consume much time, and also be very expensive; that my contract with government required of me good, wholesome, issuable provisions, and that if he wanted them repacked and salted it was not to be done at my expense. He still contended that I must furnish hands and salt to comply with his demand. This controversy however did not kill time. I determined to comply with his demand and leave it with government to remunerate me, I was determined to make every thing bend to the saving of time and advancing the expedition up the two rivers as far as I was concerned, or my influence in any way extended. As to the quality of my provisions and the proper weights, I had nothing to fear, as affidavits accompanying this communication will shew. I knew that much time would be lost, which I considered every thing in the general success of the enterprize; the prospect of advancing at this time was gloomy; I had done every thing in my power to induce Col. Chambers to receive the provisions in the garrison, but was totally unsuccessful.

I now looked forward to the arrival of Gen. Jesup and Col. Atkinson as a day of jubilee. I had the greatest confidence that on their arrival all would go well. I viewed them as the pillar on which rest-

ed the whole fabric, and that on their arrival nothing could shake them, but that all difficulties would melt as the snow before the radiant beams of the sun of a winter's day. Gen. Bissell no longer visited me. Col Chambers conceived it his duty not to recognize me in any way until the arrival of the officers already mentioned. It is true he ordered me as contractor to send in provisions in a keel boat to Cow island; and also I received at the same time an order from Gen. Bissell requiring me to forward on supplies to Prairie du Chein, which orders much astonished me; for while they were ordering me as contractor to convey the provisions spoken of, they refused to receive the provisions, or to suffer them to be put in the public storehouse, or to suffer them to be inspected in the garrison. Thus, sir, was I pushed forward with one hand and held back with the other.

Had the provisions been received at head-quarters, I could and would have forthwith sent in the steam boat Johnson to Cow Island with provisions, and the Expedition could have been employed in transporting the provisions for St. Peters to the great rapids on the Mississippi; if not, to Prairie du Chein, or both vessels might have made a trip to Martin's Cantonment, or the mouth of the river, to my flat boats, and returned in time to make a movement with the other provisions and munitions of war. But, sir, here I had no place to land, but what I must be immediately interrupted, and perhaps the transportation of the provisions in my steam and keel boats frustrated; I then determined, if the inspector would agree, to fall down to the mouth of the river on the Illinois shore. I consulted him and found him willing, and immediately dropped down to the mouth where business assumed a regular and pleasant form without interruption; but still the loss of all this time was of serious consequence to me; you recollect I stated that I had shipped a quantity of provisions in flat boats to the mouth of the Ohio. During the above controversy, time was spun out so that two of my flat boats sunk, my agent who was an impostor, and I may say dishonest, some of the provisions were lost, and a considerable quantity he sold, which much diminished my amount on hand; now if the first steam boats had been suffered to deposit their cargoes in the public storehouse as stipulated in the contract, they would have been able to have returned to the mouth of the Ohio, and met the flat boats and conveyed their loading to head-quarters in due time, even by the time the first provisions were inspected, or they could have made the trip before mentioned, which would have been equally profitable; this is one great cause of my provision being deficient in the quantity required by government. Second, the delay was so great that my own several crews consumed more than was calculated. Thirdly, the troops on each steam boat from Louisville to Belle Fountain, required a greater supply than ordinary. And fourth, the increase of troops at head quarters. After arriving at the mouth of the Missouri, so much time had been lost, and I in the hourly expectation of Gen. Jesup and Col. Atkinson, I could not venture to send my steam or keel boats after the provisions at the mouth of the river, but employed

others. The steam boat Calhoun having also proven deficient in her boiler after ascending some distance up the Mississippi, her cargo was also brought on in the same manner to the mouth of the Missouri; the Jefferson unfortunately broke her piston head, a part I had never known to fail before in any other steam boat, or I would have provided an extra one before leaving Louisville. She however soon repaired the injury and came on with her cargo to the warehouse at the mouth of Missouri; finding now, that, from the reasons before assigned, my provisions would be short in the quantity, I determined to supply it in two ways; first, to purchase what was to be had in St. Louis; and second, to write to my brother R. M. Johnson, in Kentucky, to forward on a quantity from that quarter; the first plan was immediately put in execution, and a considerable quantity obtained, indeed very little remained of any kind in St. Louis, I purchased the whole in a few hours, having agents in different parts of the town, who made their purchases simultaneously; by this means I obtained it at a fair price. I now had a sufficiency to complete the requisition for Missouri, and one hundred thousand rations for Mississippi. I knew that supplies would arrive from Kentucky to complete the requisition for Mississippi, or at all events before the hundred thousand rations could be possibly exhausted.

The purchases made in Kentucky were to a much greater extent than was needed, but, unfortunately, the extreme drought prevented its descending the Ohio. This could not have been expected, as the Ohio had never before been known to fail rising in July or August. Finding that low water prevented the supplies from arriving from Kentucky, I determined to make another purchase at St. Louis, as sufficient time had elapsed since the former one to replenish the country: also, the mills in Missouri were manufacturing flour. But, sir, at this time my resources were exhausted; I had not the means of purchasing. Great pains had been taken in St. Louis, and its vicinity, to destroy my credit, so that I was unable to purchase any thing in this way. One very successful report circulated, was, that I had drawn from government $180,000; this seemed to be received as fact, for those who gave it currency stated it came from a source not to be doubted. To what source reference was made, I shall leave with yourself to determine, when you have read the accompanying letters. This report was not in circulation until about the time the steam boats left Belle Fontaine, and ascended the river. My purchases in this second attempt were limited, and for no other reasons than those already assigned, as powerful exertions were made to complete the supply. I addressed my brother in Kentucky frequently, and requested him to explain to you the cause of this deficiency. I confess I never had experienced any occurrence that gave me more unhappiness. To place before you the real deficiency, I here state the quantity of rations furnished under the requisition of 670,000;—540,000 rations flour, 566,000 rations meat, 567,794 rations whiskey, 11,060 pounds candles, 23,133 pounds soap, 4,422 pounds salt, 91 gallons of vinegar. A large and full supply of vinegar was sent up to Coun-

cil Bluffs, which had not been receipted for in consequence of its not having been quite sour enough: this arose from its new state, as it was daily getting better: good old vinegar could not be procured in Kentucky: I therefore employed a man to make it for me during the winter. Colonel Atkinson informed me that he would receive it at Council Bluffs, if good, and I had so much confidence in its turning sour, that I sent it on at my own risk, upon the promise before mentioned. This brings me to my contract with regard to transportation. There are many painful circumstances connected with this branch of my duty, that has produced considerable mortification. But, with regard to the fulfilment of my contract, as it regards transportation, I have the happiness to state, and confidence in doing so, which prevents contradiction, that I have discharged my duty, thus enjoined, with a promptness and despatch that has never, in any single instance, occasioned the least delay or difficulty. I informed you that I fell down the river, to the mouth, on the Illinois shore. With the carpenters on board the steam boats, I had in a very short time erected a warehouse sixty by twenty-four feet: this did not prevent the inspection from progressing. The roof was soon on, and formed a good shelter to the provisions. Major Hemstead, the commissary, attended to the inspection of provisions, and the shipments, seeing that the bills of lading were correctly made out and forwarded to the place of destination. In a very few days I had four keel boats with about one hundred thousand dollars [rations] for the Mississippi. Three of them arrived at Fort Crawford before colonel Leavenworth's detachment, and returned with proper vouchers, acknowledging the receipt of the provisions in good order. The fourth arrived and accompanied colonel Leavenworth's detachment to the St. Peter's. They found every garrison well supplied with provisions. Colonel Leavenworth was highly pleased with captain Birch, who commanded my boat, as I understood. I now turned my attention to the outfit for the Missouri. The steam boats were unloaded, and, as fast as the provisions were inspected, were reloaded, every thing going on rapidly and in good order. About this time general Jesup arrived and paid me a visit in company with colonel Chambers. They remained but a few minutes, and left me. I insisted on the general to remain all night, or at all events to spend one evening with me as soon as convenient. I was extremely anxious to embrace the first opportunity to explain fully my conduct, and the conduct of others, to general Jesup. Knowing that my controversy had two sides to it, and knowing that every means would be used by others to produce an unfavorable impression on his mind, I wished to have an equal opportunity with others to vindicate myself. In fact, from the high and exalted opinion which my brother R. M. Johnson entertained of general Jesup, and had communicated to me, I looked up to him as my stay and support against persecution and opposition, so far as it would operate against government, and was within his control. And knowing, as I did, that the good and virtuous, as well as the vicious and corrupt, could be biassed and prejudiced, I felt great

anxiety to give him a full view of all that had been done and acted. Shortly after this, colonel Atkinson arrived, and visited me in company with general Jesup. I was very anxious for both of them to remain all night, but they were in a hurry, and left me in about one hour; I still urged them to spend some time with me, but, very much to my mortification, it was the last I have ever seen of general Jesup. What part of my conduct was offensive to him, I know not, nor is it here my business to inquire. I am not conscious of having acted improperly towards him in any instance. I confess that, upon the second visit of general Jesup and his hasty departure, I felt apprehensive lest I had something to fear from the unfavorable opinions which I knew would be communicated to him in relation to myself. And, although those fears increased, they never were realized until the commencement of the correspondence between us, which is hereto annexed, see No. 2. Colonel Atkinson frequently visited me, and spent much time at the warehouse, afforded me every facility in his power to expedite the business, so as to make a movement, which was prevented by the inspection not having been completed. I must here remark, that, had the provisions been received and inspected at the public storehouse, we could have advanced with the expedition up the two rivers with not more than one-fourth part of the delay. Colonel Atkinson ordered soldiers to assist me in unloading and loading the boats, which was of infinite service, particularly in saving the cost of drayage, as the soldiers would convey the provisions from the river to the warehouse, and, after inspection, return them to the same place, when my sailors would put them on board. Indeed language cannot pass an encomium too exalted on this valuable officer. He combines, in an eminent degree, the good qualities that constitute a great officer, and displays all that frankness of character, and energy of spirit, which at once announces him a man of talents, and a gentleman of the highest integrity. The steam boats all received their cargoes, viz: the Expedition, Jefferson, and Johnson, composed of provisions, munitions of war, and military stores, and arrived at Belle Fontaine about the 2d July, where a quantity of quartermaster's and hospital stores were put on board, and the baggage belonging to officers and soldiers. The 3d day of July was appointed to set sail. Major Hemstead still attended to the bills of lading, and not the quartermaster. But I must here remark, that, during the time we lay at the mouth of Missouri, where the Jefferson unloaded the military stores from Pittsburgh, captain McGunnegle, the quartermaster, did attend to dividing the stores for the two rivers. And while I had an empty keel boat entirely unemployed, in the same harbor, and a patroon appointed and waiting for loading, the quartermaster, captain McGunnegle, took charge of those designed for Mississippi, and freighted a boat of Mr. Minns, of Pittsburgh, for Fort Crawford, without giving me any notice, or even a hint, that he wanted me to take it. I wish you, sir, particularly to mark this fact, as others of a similar nature will occur. That while I had provided transportation for the whole of the expedition up the two ri-

vers, that freight was given by Mr. McGunnegle to other persons, without giving me any notice whatever, although my contract required 30 days.

At Belle Fontaine there was left, after loading the steam boats, something like a keel boat load of flour and other stores. I informed captain McGunnegle myself that I had a keel boat unemployed at the mouth of the river, five miles below, and that a patroon had been appointed and gone to St. Louis to procure hands; and that I wanted the loading for that boat: he made no objection to me whatever. My agent, captain Andrew Johnson, left me the next day just above Belle Fontaine, and I directed him to call and see McGunnegle, and remind him of the same fact. He then told my agent that he had promised the load to Mr. Holderman, and that he should have it, as Holderman was ready to start with it. I accompanied the steam boats to St. Charles, which, on account of the Jefferson getting aground, took us several days: I there left them, and returned to the mouth of the river to make other shipments up both rivers in keel boats. I called at Belle Fontaine, where lay three of Mr. Holderman's keel boats with about three men guarding them; this very loading was on board those boats which were then waiting for the arrival of hands from St. Louis to take them up the Missouri river. The boats, as I am informed, did not leave Belle Fontaine for several days after, and were not more than half loaded from their appearance. Mark this fact also; loading taken from me again when I had boats unemployed: I could not but think strange of the quartermaster, but did not complain.

Pretty early after my arrival, I despatched an agent to meander the Missouri river, and to have, at convenient points, fire-wood placed on the bank of the river for the steam boats, as high as the settlement extended, and as much farther as contracts could be made to that effect.

A few days before the steam boats set out, I found that my funds were nearly exhausted, and that I had not even a sufficiency to supply each steam boat with what would be indispensable to purchase fuel. I therefore addressed general Jesup, requesting a small advance of money. Major Sebree bore him the communication to St. Louis. He informed major Sebree that he would come and see me the next day at Belle Fontaine. He did come to Belle Fontaine, as I was informed, for I did not see him, but received a written communication, which was handed me by captain McGunnegle *unsealed*, to which I beg leave to call your attention in No. 2. This referred me to captain McGunnegle for an advance. I now felt gloomy in the extreme. After having used the greatest efforts to get ready and forward the expedition in my department; and having three steam boats loaded, and well manned and rigged, and a number of keels, ready to ascend, that I must now fail in the enterprize, or be compelled to ask strangers to credit me for the fire-wood that was to propel the steam boats in accomplishing this great object. I did not, however, receive a cent from McGunnegle, although I applied to

him. He refused to make any advance unless I would enter into a settlement of a transportation account, which I conceived to be embraced in my contract. The steam boats were now ready, and the next day allotted for them to set out: I determined to make one more effort in St. Louis, (where my enemies could have been stirred, they were so plenty.) I therefore despatched my agent to make the effort, and meet me at St. Charles if successful; and, as if a guardian angel helped my cause, he found one friend in St. Louis, and succeeded, met me at St. Charles, where I distributed a moderate sum to each boat. It had always been my intention to accompany the boats in person, but knowing the opposition to me to be more formidable and serious than I had expected, I determined to return to the mouth of the river to attend other shipments, which were still very considerable; and also to make purchases to complete the quantity required. I took my leave of the steam boat at St. Charles on the 9th July, and arrived same day at the mouth of the river. About three or four days after I had received the letter of general Jesup, already alluded to, it was currently reported, and publicly talked of, in St. Louis, that I had drawn $180,000 from government, and that I should never be able to settle my accounts with the department. Recollect, sir, the letter came unsealed: see captain Johnson's certificate, No. 3. This had a powerful effect on my credit, and encreased my difficulties considerably. I was continually engaged in making shipments, and wanted boatmen, and, I assure you, found much difficulty in obtaining them. But, by unwearied exertions, and giving good wages, I never had, thank God, to let any boats of mine remain inactive for want of hands. But, owing to the reports in circulation, I was compelled to give higher wages, and make greater advances, than other persons, to boats' hands. This lasted for two months, but by being very particular to give good current money, and paying promptly, my credit with this class of citizens was effectually restored; and I could, at any moment, obtain any number of hands that my shipment required. I refer you, sir, to my estimate of shipments made, to give you some idea of what was done after the 5th July. But, notwithstanding the restoration of my credit with the class of citizens already alluded to, yet I was totally unable to purchase any provisions except for cash, and could not dispose of a bill on my brother, or any other place, to create a fund with which to complete my purchases. In order to give you a still further view of this subject, I beg leave here to introduce two extracts of letters from major Sebree, my agent, a man alike distinguished for his integrity and high standing, as for his gallantry at Fort Meigs and Raisin during the late war, and his patriotic services in the House of Representatives and Senate of this state; dated

On Steam Boat Jefferson, *August* 30, 1819.

Dear Sir: Your keel boat arrived, and is along side the Jefferson. Yesterday two of McGunnegle's boats arrived. Your boat is much hindered, and I have not yet had it in my power to hire a man; such

is the prejudice among the hands on McGunnegle's boat against you, that they had put it into the heads of some of them on your boat that they would not get paid for their trip. It gave us some trouble to get them reconciled to go on. I have had much difficulty with the regulation of the loading on board the Jefferson. Captain Bliss, the commanding officer on board, did not think, from his instructions, he could permit any of the loading to be put on your boat. He is very friendly, and disposed to do every thing in his power to accommodate, but thought that his instructions would not permit him to suffer any of the loading to go on your boat. I then told him that I should order the boat along side the Jefferson, and go to loading her unless prevented by *force*. He requested a short time to reflect, which was granted, and it produced the order you have enclosed, which I have answered as you see.

I shall not leave this place until the troops start; I shall then go on in one of their boats until I overtake yours; and believe it will be best for me to go on all the way, or, at least, until I come up with the steam boats. These boats are very light loaded, not having more than half a load, and strongly manned, and will be able to go on very fast. Captain Bliss has been so polite as to invite me to go on in his boat, and live with his family, and promises to give me all the aid in his power.

Since writing the above I have hired one hand to go on your keel. They are now under way, and I think they have hands enough, or nearly so.

This morning when the boat was about to start, a part of the hands refused to go, and gave for reasons, that they had been told you would not pay them; that they would lose their time and labor. It was with some difficulty that I could get them under way, but they have now started.

URIEL SEBREE.

Col. JAMES JOHNSON,
Mouth of Missouri.

STEAM BOAT JEFFERSON, *August* 31, 1819.

DEAR SIR: Captain Offutt has just returned from Franklin. He found at that place two of your keel boats. A part of their hands had got sick or tired; and the prejudice against you is such, that they have not been able to hire hands without paying money. The hands have become alarmed at the clamor that they will not get paid. I had this day again much difficulty to get the hands on board your keels to go on. They became alarmed at the clamor among the hands aboard the keels sent on by captain McGunnegle.

URIEL SEBREE.

To Colonel JAMES JOHNSON,
Mouth Missouri.

The above letters need no comment from me: they show plainly the difficulties I had to encounter. I feel it my duty, however, to

state further, that, at the time it was announced to me that the Jefferson could proceed no further, I had a fifty ton keel at the mouth of the river. I immediately purchased one of equal burthen. The third I could have had in two or three days, as I was on the eve of a trade for her. The first was manned and sent on, and it required only four or five days to get hands and send on the other two. But captain McGunnegle, in three days, had three boats, spoken of by major Sebree, and belonging to Holderman, under way. They passed by the point at which I was, in my view, which induced me to cease my further arrangements. I knew that these boats could reach the Jefferson, and receive the loading before mine could possibly arrive. The three that I had provided, as you see by the letter of major Sebree, would have been amply sufficient, as it appears that Holderman's boats were not more than half loaded. And such was the positive and authoritative order of the quartermaster, that captain Bliss, although disposed to do me every justice, did not think himself authorized to let my boats have any load, upon no other pretext, than that there might remain a small surplus after McGunnegle's boats had taken what they wanted. Had my two other boats went on they would have been refused a load, and returned empty. I cannot leave this unpleasant subject without making a few more remarks. My contract with government required me, on thirty days notice, to provide transportation for the provisions and munitions of war, and military stores, and also that I was to have the exclusive freight of the whole transportation. Now, sir, mark what is the fact. Freight has been given to other persons, when I had keel boats in the same harbor unemployed. Keel boats are forwarded, without giving me but one or two days' notice, to take the loading of the Jefferson, and my own keel boat refused a load when actually on the spot. Never, sir, until the 28th August, after the whole of the shipments, or nearly so, had been made, did I ever receive a notice from the quartermaster's department, except what passed in relation to the failure of the Jefferson; and, to place before you the nature of my contract, I refer you to captain Cross's letter on this subject, addressed to Richard M. Johnson. He expressly says, that, upon thirty days notice, I shall provide transportation for provisions and troops on the failure of the steam boats. I could have provided transportation in less than eight days. I now come to the 27th August, at St. Louis, when I received the letters and notice from general Jesup and captain McGunnegle. Here is the first that I received from the quartermaster. This notice shows that I was required to take freight, then ready, for Prairie du Chein, and that I was ready, and my agent so reported the boat and crew to captain McGunnegle, who declined making use of it. The fact is, that he had promised this very loading, ten days before, to a Mr. Beldin, as Beldin since informed me. The history of this case is as follows: He gave it to Beldin, and ordered him to load his small boat first in a few hours, and to start with her out of port, and that she might then wait for his large boat. This Beldin did, and went on, after load-

ing, to Fort Crawford. When he reached the Rapids, being a merchant, and but little accustomed to keel boat navigation, he became discouraged; and, after an absence of one month, returned to the mouth of Missouri, leaving a considerable quantity of the stores at Louisianaville, upwards of one hundred miles up the Mississippi, in a cabin, as he told me, with the door nailed, not leaving any person to guard and take care of it: but said that some person told him they would have an eye to it. Part of that which was in the boats was injured by letting the water rise so as to touch the flour. Beldin gave this information himself. He had the appearance of a gentleman, but not fit for the keel boat navigation. He made an offer of his boats to me to take charge of the property. I declined doing any thing in this matter, and received a letter from captain McGunnegle, which will be found in his correspondence.

My business seemed now drawing to a close. I began to make shipments with ease, and a facility more than usual. But a circumstance took place, near the close of my business, to which I feel it my duty to advert. Captain McGunnegle gave me notice that he had ready for Prairie du Chien about twenty tons. I immediately dispatched a boat to take it on. Upon its arrival, my agent reported the boat, and the patroon informed him he was ready to load. He then stated he had only ten tons, but expected more in a few days, but could not say when. My boat, patroon, and hands, then had to remain in St. Louis from seven to ten days. At length the loading he had on hand was received, which did not amount to twenty tons, although my vessel was a forty ton boat. I, however, ordered it off with half a load. After it had gone not more than three days, I received another notice from him that he had fifteen tons more for which I must provide. Such parts of loading was extremely unprofitable, at ordinary prices, to freight us. But, about the time I was making arrangements to ship that also, he informed my agent that it was unimportant, and he would not send it. In all my proceedings, I endeavored to discharge my duty, and interfere with no man's business. If I knew my own heart, it was that the government should succeed in their noble enterprize in a greater degree than the strong hopes of the most sanguine. I humbly conceive they have succeeded to their wishes. Captain McGunnegle never recognized me as contractor, or ever gave me notice to do a solitary act until his letter of the 28th August, except in relation to the Jefferson, and I had, on the next day, a boat in the St. Louis harbor, according to the requisition of his letter on the 30th August. In all my shipments, in steam and keel boats, he never made his appearance; but his business was done by major Hemstead. But the major since informs me, that captain McGunnegle refused to receive the bills of lading, and that they still remained in his hands. I then informed major Hemstead that it was entirely immaterial to me whether he recognized them or not; that I never should present a paper to him for settlement or recognition, that if the government was served, my highest wishes

were gratified. After his notice of the 28th August, I generally made the shipments under his directions, but even then he did not attend in person. He generally sent the bills of lading, all filled up for my signature or that of my patroon, with the price of freight or of transportation, without giving me any opportunity to say yea or nay, although my contract gave me the privilege. The first that was presented to me, having the price filled up to Council Bluffs, I objected to signing. I asked major Hemstead if M'Gunnegle had filled the bills of lading with that price; he informed me that he did. I then objected to the price; but finding he was not authorized to change the bills of lading, I was compelled to sign them, or go without any. I then informed major Hemstead that I would sign if it were one cent. That I would make every thing in which I was concerned bend to the government, if it could aid in accomplishing the important object. I did sign, or ordered my patroon to do so, but, with the reserve, that I should be ultimately paid agreeably to my contract.

I did hear that it was reported at St. Louis, that some exception was taken to the letters that I addressed to the printers in Kentucky and published. I could scarce believe it possible; for, in those letters no more was intended than a simple narration of facts, to keep the public feelings alive to the expedition, and giving it confidence in favor of its final success. I was told the same, on my arrival in Kentucky, and have, for my own satisfaction, collected together all my letters, and I send them with this design, to show you how far the report alluded to was justified.

I also understood that I was censured for a scarcity of provisions at Martin's cantonment. One of the first things, after my arrival in that country, was to inquire of my agent, whether the troops up the two rivers had a supply of provisions sufficient to serve until the grand supply went on. He informed me there was.

I have heard of no complaint from any other quarter. Previous to my arrival, my agent had dispatched a boat loaded with provisions to Martin's cantonment, and, upon calculation, we thought it sufficient. I, however, for fear of a deficiency, purchased seventy-eight barrels of flour, to be delivered early in the season. My agent had also foolishly purchased a quantity of whiskey at a high price. On calculation, I found that in July and August I had there the following articles: 95 barrels flour, 11½ barrels pork, 4 head beeves, 46 barrels whiskey, 18 boxes soap, 31 boxes candles. Here were provisions enough to last 300 men:—flour 43 days, meat 20 days, whiskey 6 months, and a full supply of soap and candles; and the issues in June were complete, for which I have an abstract.

Now, sir, to bring this matter to a close: for I fear, while writing, I shall fatigue you over much in pursuing this my vindication, and nothing could make me feel justified, but from the belief that the affair has become so serious as to involve character.

How have I and how am I about to wind up that part of the expedition confided to my care? On the 12th October, major Sebree,

with the last article from on board the steam boat Expedition, and part from steam boat Johnson, was one hundred miles above Martin's camp with my keel boats, going on well. Captain Craig on the 16th of the same month, with my keel boats, had received every pound of cargo from the steam boat Johnson, and was going in person to the Council Bluffs, with all despatch possible. Long before this day every pound of provisions is at head-quarters; this cargo was conveyed by my keel boats, which boats returned from the Council Bluffs, after having discharged their cargoes.

The two last keel boats sent from Belle Fontaine may not have reached head-quarters, but they must be near at hand. Thus, is this great concern closed, and I have conveyed from Belle Fontaine, up the two rivers, nine hundred and eighty-seven tons, and could have conveyed much more if required.

Why all of a sudden the navigation of the Missouri and Mississippi has become a matter of such light moment as some would insinuate, and try to make us believe, is altogether strange. What seemed to be last Fall a universal sentiment when it was understood I had agreed with the government to make this experiment, and what was almost equally the sentiment as to the success of the enterprize itself? It was generally feared that it was impracticable. It was admitted by all, except a squad at St. Louis, to be a most high-minded attempt to benefit the west in particular; and that squad was composed of those who were in the British interest, as I believe. But, as respected the success of the steam boats, this was thought out of the question: sir, may I be believed that I found very few indeed but what believed the same thing? Louisville, Cincinnati, and the whole country, contained the same sentiment. All this, I confess, did not change my belief that success was ours; and we have certainly succeeded as far as a trial could be obtained. I can put the provisions as high up as the government requires next year. And, if I still have your confidence and support, the world shall be deceived as to the fact of success, and that too in steam boats in part, and keel boats the balance. Many who own steam boats now believe in its practicability.

I have broken the way at immense expense and risque. If they now could undermine me and step into my shoes, nothing could delight them more. Without intending to boast, I would humbly ask where would have been the army had St. Louis alone been relied on for transportation? I would venture to state that the whole would have remained at head-quarters, and fallen through this year. My task during the present summer has been arduous and perplexing in the extreme. But, thank Heaven, I did not shrink, but was always at my post. Last fall I commenced and sent the troops as far as Martin's Camp, but at much expense. I lost one boat and entire cargo. This, however, did not check my ardor. I offered six cents per pound to Mr. Holderman, (the great freighter;) he declined, and gave his certificate that it was not enough. This year, however, he is apparently freighting half as far again for 5½ cents. Yet such

men as captain O'Fallon, who has actual experience on the river, and many old tried boatmen, whose certificates I hold, state that it is worth ten cents to Martin's Cantonment.

I have done: my case is with you.

Very respectfully,
Your obedient servant,
JAMES JOHNSON.

The hon. JOHN C. CALHOUN,
Secretary of War.

The following letters were written by colonel James Johnson after he left Louisville on the western expedition, and published in the Argus:

STEAM BOAT EXPEDITION,
Off Cape Girardeau, May 6, 1819.

DEAR SIR: This is my fourth day from Louisville, 550 miles from that place, and nearly 50 miles against the current of the Mississippi. For the want of a pilot in this river, I have lain by during the night. It is said that I have already encountered nearly as difficult places as I shall find on the Missouri, the Little and Grand Chien, where high piles of rocks rear their heads above the water, which cause the current to be very severe. Last evening, in the midst of this difficult place, our tiller rope broke, which disabled us from managing the vessel: the current was swift, but captain Silas Craig, who is always full of presence of mind, let go his anchor and saved us from any injury: we were soon under way again. At this time I have a cargo which weighs between 4 and 500,000 lbs. between 1 and 200,000 lbs. more than this boat ought to carry when we leave head quarters. We go on well, &c.

STEAM BOAT EXPEDITION,
St. Louis, May 13, 1819.

DEAR SIR: I arrived at this place on yesterday, only ten days from Louisville, with 200 tons of provisions, in this excellent steam boat. The sixth regiment which is destined for Missouri, is yet in our rear. I fear this circumstance will retard our movements a short time. The rifle regiment, intended for the same service, is already part at Belle Fontaine, and the balance in advance at Martin's Cantonment. I hope and trust that we shall be allowed to proceed with this steam boat and the Johnson, up the Missouri, and the Jefferson up the Mississippi; and the Calhoun, which I expect will come with the sixth re-

giment, can follow on. The Mississippi is now up, and I expect the Missouri will commence its rise very shortly. The success of our trip much depends on an early start. I feel the greatest confidence in our success. I have tried the Mississippi to this place: we can manage it at the difficult ascent. I believe we shall manage the Missouri. I feel competent to meet its difficulties, if Providence, in whose guardian care I rest my undertakings, &c. The sixth regiment, mentioned above, passed Louisville above a fortnight ago. The Calhoun left that place early on Saturday morning last.

Extract of a letter from colonel James Johnson, dated Steam Boat Expedition, May 14, 1819, *to a friend in Scott county.*

"Since my arrival here I have been very much gratified with the satisfaction which seems to fill the bosoms of the citizens of St. Louis who have visited us, at the prospect of a military establishment at the Yellow Stone and St. Anthony. General Rector, and other respectable citizens, were with me to-day. I expect general Jesup and the Western Engineer, and the sixth regiment under colonel Atkinson, every day.

"I shall leave this place for Belle Fontaine in a few hours. I have prepared for a long campaign. I have put my hands to the plough, and must not look back; what I have undertaken I must accomplish. I recollect the fable of the wagoner and Hercules, and, while I trust to Divine Providence, and lean upon the arm of Jehovah, I must put my own shoulder to the wheel, &c."

STEAM BOAT EXPEDITION,
Off Belle Fontaine, May 20, 1819.

DEAR SIR: I have but a few minutes to inform you that we arrived here the day before yesterday. We have now experienced some of the difficulties of the Missouri; in entering its mouth we run aground on a sand bar, but so well are we fixed for such cases, that in thirty minutes we were afloat again. Soon after one of the snags or planters caught on a part of the guard, which stopped the boat; but capt. Craig being quick in resources to avoid dangers, soon was clear of it: we then soon came to a point of rapid water, here we beat back; we made several efforts to get over, but failed. Captain Craig then run out his warp, and we soon went over the difficulty. I find that it will not do to load as heavy as I expected in the Missouri. My confidence in success is not in the least shaken. I believe we shall succeed. I find that we are well provided to meet difficulties: it was expensive to make the arrangement, but, sir, I see the necessity. I am waiting now for orders to move up the Missouri, and expect to re-

ceive them very shortly. I long to be on my march, as every day is precious. The Missouri has not commenced its annual rise, but it is in good order for navigation. The Johnson and Jefferson are still behind, but I hourly expect their arrival. I expect every day that the government boat commanded by major Long will be here. I hope in her will come general Jesup and colonel Atkinson; then we go to work.

Your friend,

JAMES JOHNSON.

STEAM BOAT EXPEDITION,

Off Belle Fontaine, May 20. 1819.

DEAR SIR: Since writing you, this day, I have learned that the Johnson is between this and St. Louis, and will be here to-morrow. The Jefferson is about 100 miles below St. Louis, but has been so unfortunate as to break some part of her machinery which will detain her a short time; the Calhoun will be here very shortly. I hope the Jefferson will be at head-quarters as soon as the troops are ready; the sixth regiment of infantry is in the rear.

Your friend,

JAMES JOHNSON.

From the Georgetown Patriot.

GENERAL THOMAS S. JESUP. This distinguished young officer passed through this place a few days since, on his way to St. Louis for the purpose of controlling, in person, the expedition to the Yellow Stone.

General Jesup entered the army in 1808, as an ensign or lieutenant, and he is now the quartermaster general of the United States; his rapid elevation to this important station is owing to his merit; he is about thirty years of age, intelligent, persevering, and energetic; he is well qualified for the station he fills. He is an officer who is not only considered well skilled in military science, but he was in the late war distinguished for his service in the battles of Niagara, Chippeway, &c. &c. in which he was severely wounded, and carries the mark in his right hand, having lost two fingers.

General Jesup is entitled to more credit, as he has risen to his present eminence from his exertions and merit alone. No officer fought better in the late war, nor few who have stronger claims upon the gratitude of our country. While our hopes are strong in the complete success of the expedition, it is a source of great consolation that it is under the control of men whose sagacity and intrepidity are almost certain pledges against even the most distant probability of a failure. The advantages to be derived from an establishment so

far up as the mouth of the Yellow Stone, may look remote, but we anticipate much useful information from the result of this voyage, as well as interest to the community, as it appears to have been arranged by government with great conviction to its importance, to ascertain the point where the Rocky mountains are intersected with the 49th degree of latitude, which forms the western boundary between the possessions of Great Britain and the United States; to inquire into the trading capacity and genius of the various tribes through which they may pass; and, finally, to investigate whatever may be novel or interesting in the geology, botany, mineralogy, and natural history, of those yet unknown regions.

ST. LOUIS, *December* 1, 1819.

SIR: Your note of yesterday's date has just been handed to me by Mr. Crow, together with the letters addressed to me from above; for the trouble of bringing them I feel obliged to you.

If it were proper that I should order the money to be paid, for the cordage received from the Expedition, there is no one here to do it, the quartermaster being absent. But as the colonel Johnsons have received large sums of money from the government since I left this place: say colonel James Johnson a check on the Missouri bank for $36,000, and colonel R. M. Johnson for $80,000 more, in Kentucky, I think it but proper that they should settle with government for all the articles received from them.

I wish you to understand distinctly, that I do not know personally that the colonel Johnsons have received the above sums—I speak from information.

With great respect, Sir,
Your obedient servant,
H. ATKINSON,
Col. 6th Infantry.

Mr. SEBREE, *Fort Johnson.*

No. 3.

Documents submitted in evidence on the part of Colonel Johnson.

Articles of agreement made on the sixth day of December, anno Domini one thousand eight hundred and seventeen, between George Graham, acting Secretary for the Department of War of the United States of America, of the one part, and James Johnson, of Great Crossing, in the state of Kentucky, of the other part.

This agreement witnesseth. That the said George Graham, for and on behalf of the United States of America, and the said James John-

son, his heirs, executors, and administrators, have mutually covenanted and agreed, and by these presents do mutually covenant and agree, to and with each other, as follow, viz:

First. That the said James Johnson, his heirs, executors or administrators, shall supply and issue all the rations, to consist of the articles hereinafter specified, that shall be required of him or them, for the use of the United States, at all and every place or places where troops are or may be stationed, marched, or recruited, within the limits of the state of Indiana, and the territories of Illinois and Missouri, thirty days notice being given of the post or place where rations may be wanted, or the number of troops to be furnished on their march, from the first day of June, 1818, until the 31st day of May, 1819, inclusive, at the following prices, that is to say: For every complete ration, issued at Fort Massac, the price thereof shall be twelve cents five mills; at Belle Fontaine thirteen cents seven and a half mills; at Forts Clark and Harrison, seventeen cents; at Fort Osage, nineteen cents; at Prairie du Chien, or Fort Crawford, twenty-four cents seven and a half mills; at Fort Armstrong nineteen cents five mills; and at all other places within the said state and territories, and their vicinities, the price of the ration to be augmented according to the expense and difficulty of transportation. When the price of the ration is twelve cents, five mills, the prices of the component parts thereof shall be, for bread or flour, three cents five mills, meat five cents five mills, liquor two cents; small parts one cent five mills. When the price of the ration is thirteen cents seven and a half mills, the prices of the component parts thereof shall be, for bread or flour four cents, meat six cents, liquor two cents two and a half mills; small parts one cent five mills. When the price of the ration is seventeen cents; the prices of the component parts thereof shall be, for bread or flour five cents, meat seven cents five mills, liquor three cents; small parts one cent five mills. When the price of the ration is nineteen cents, the prices of the component parts thereof shall be, for bread or flour five cents five mills, meat eight cents five mills; liquor three cents five mills; small parts one cent five mills. When the price of the ration is twenty-four cents seven and a half mills, the prices of the component parts thereof shall be, for bread or flour seven cents two and a half mills; meat eleven cents, liquor four cents five mills; small parts two cents. When the price of the ration is nineteen cents five mills, the prices of the component parts thereof shall be, for bread or flour five cents five mills, meat nine cents, liquor three cents five mills; small parts one cent five mills. When the price of the small parts of the ration is two cents, the prices of the component parts thereof shall be thirty cents per pound for candles, twenty-five cents per pound for soap, nine cents five mills per quart for salt, and nine cents per quart for vinegar. When the price of the small parts of the ration is one cent five mills, the prices of the component parts thereof shall be twenty-five cents per pound for candles, nineteen cents per pound for soap, five cents per quart for salt, and seven cents per quart for vinegar.

Second. That the ration to be furnished and delivered by virtue of this contract, shall consist of the following articles, viz.: One pound and a quarter of beef, or three quarters of a pound of salted pork; eighteen ounces of bread, or flour; one gill of rum, whiskey, or brandy; and at the rate of two quarts of salt, four quarts vinegar, four pounds of soap, and one pound and a half of candles, to every hundred rations.

It is understood that it shall be at the option of the general, or officer commanding an army or great military district, in cases not otherwise provided for by this contract, to direct when, and how often, fresh or salted meat shall be issued, by general orders, to be promulgated a reasonable time before the issue is to commence; that, in all cases where the salted provisions are issued, the article of salt shall not be required, that the contractor shall always issue flour two days in every week, and the option of the contractor as to the issue of bread or flour for the remainder of the week.

Third. That supplies shall be furnished by the said James Johnson, his heirs, executors, or administrators, at the fortified places and military posts that are or may be established in the limits aforesaid, upon the requisition of the commandant of the army, or a post, in such quantities as shall not exceed what is sufficient for the troops to be there stationed, for the space of three months in advance, in good and wholesome provisions, consisting of due proportions of all the articles forming the ration. It is, however, understood that at Fort Clark, at Fort Osage, and at all posts that may be established on the Mississippi or its waters, above Rock river, supplies shall be furnished for six months in advance, on the requisition of the commandant of the post or army.

It is understood that, if the contractor shall be required to deposit provisions at one place or post, and shall afterwards be required to remove them, to be delivered at another place or post, the expenses of transportation to such other place or post shall be borne by the United States. It is also understood that all supplies are to be originally delivered at the posts where they may be required, without expense to the United States.

Fourth. That whenever and as often as the provisions stipulated to be furnished under this contract shall, in the opinion of the commanding officer of the post or place where they are offered to be issued, be unsound, unfit for use, or of an unmerchantable quality, a survey shall be held thereon by two disinterested persons, one to be chosen by the commanding officer, and the other by the said James Johnson, or his agent; and in case of disagreement, a third person, to be chosen by mutual consent, who shall condemn such part of the provisions as to them may appear unfit for use. But, if the said James Johnson, or his agent, shall fail or neglect to appoint a person to inspect the said provisions, after reasonable notice in writing, it shall be permitted to the said commanding officer to appoint such persons as he may think proper, to inspect the provisions, under oath, with power to condemn as aforesaid. And all provisions condemned

by such survey or inspection, may be destroyed by the commanding officer.

Fifth. That the commanding general, or person appointed by him, at each post or place, in case of absolute failure or deficiency, shall supply the same, by purchase, at the risk, and on account of the said James Johnson, his heirs, executors, or administrators.

Sixth. That all losses sustained by the depredation of an enemy, or by means of the troops of the United States, in articles intended to compose rations to be issued under this contract, being the property of the contractor, as well as in other property, necessarily used in transporting the same, shall be paid for at the contract price of the rations, or the component parts, and at an appraised value of the other articles, on the deposition of one or more creditable characters, and the certificate of a commissioned officer, when the same can be obtained, ascertaining the circumstances of the loss, and the amount of the articles for which compensation is claimed.

Seventh. That escorts and guards for the safety of the provisions, and for the protecting of the cattle against an enemy, shall be furnished, whenever, in the opinion of the commanding officer of the army, or of any post, to whom application may be made, the same can be done without prejudice to the service, and that the said James Johnson, his heirs, executors, or administrators, shall not be answerable for any deficiency of supplies at any of the aforesaid posts or places, if it shall appear, upon satisfactory proof, that such deficiency was occasioned by the want of proper escorts and guards.

Eighth. That at all stationary posts proper storehouses shall be provided, on behalf of the public, for the reception and safe keeping of the provisions deposited, from time to time, at such posts respectively; and the contractor shall suffer no loss for the want of such stores.

Ninth. That the said James Johnson, his heirs, executors, or administrators, shall render his or their accounts to the Accountant of the Department of War for settlement, at least once in every three months, agreeably to such form, as, by the said Accountant, may be established, and made known to him or them.

Tenth. That all such advances of money as may be made to the said James Johnson, his heirs, executors, or administrators, for, and on account of the supplies to be furnished pursuant to this contract, and all such sums of money as the commanding officer of the troops or recruits that are, or may be, within the limits aforesaid, may cause to be disbursed in order to procure supplies in consequence of any failure on the part of the said James Johnson, his heirs, executors, or administrators, in complying with the requisitions herein contained, shall be duly accounted for by him or them, by way of set-off against the amount of such supplies, and the surplus, if any, repaid to the United States, immediately after the expiration of the term of this contract, together with an interest at the rate of six per cent. per annum, from the time of such expiration, until the same shall

be actually repaid. And that if any balance shall, on any settlement of the accounts of the said James Johnson, his heirs, executors, or administrators, be found to be due to him or them for, or on account of the rations which shall be supplied pursuant to this agreement, the same shall be immediately paid. And that no unreasonable or unnecessary delay on the part of the officers of the United States shall be given to the settlement of the accounts of the said James Johnson, his heirs, executors, or administrators.

Provided, however, that no member of Congress shall be admitted to any share or part of this contract, or to any benefit to arise therefrom.

In witness whereof, the said acting Secretary of War, for, and on behalf of the United States, hath hereunto subscribed his name, and affixed the seal of the War Office of the United States; and the said James Johnson hath hereunto set his hand and seal the day and year first above written.

JAMES JOHNSON.

THOMAS HENDERSON,
JORDON S. PEAKE,
Witnesses to the signing of James Johnson.

Whereas, by a certain agreement, made on the sixth day of December, 1817, between George Graham, acting Secretary of War, and James Johnson, of the state of Kentucky, it was stipulated that the said James Johnson shall furnish and supply the troops of the United States according to the said agreement and contract hereunto annexed:

Now, therefore, it is agreed, between the said George Graham and James Johnson,

First. That an inventory shall be taken which shall comprise all such supplies as shall have been actually delivered on or before the last day of May next, by virtue of the said agreement, and shall, on that day, remain unexpended, either of the deposites of the present contractor, Hugh Glenn, or other public deposites ordered by the commanding general.

Second. That the inventory shall be taken in the presence of the commanding officer of the post and the party of the second part of this agreement, or his agent, and duplicate receipts given therefor by the said party of the second part, or his agent, expressing the quantity and quality of each article, or the said deposites may be received and receipted for by order of the commanding general, in such manner as he may direct.

Third. That the party of the second part shall account to the United States for all the supplies which shall be receipted for, as in the preceding article, he being allowed, however, a deduction of twelve and a half per cent. as a full allowance for wastage, leakage, and damage, of whatever nature, excepting only such losses as may be

occasioned by fire, water, an enemy, or by troops of the United States.

Fourth. That the party of the second part shall issue all the supplies, as aforesaid, to the troops at the several posts, in rations, to consist as follows, viz:

Eighteen ounces of bread or flour.

One pound and a quarter of beef, or three quarters of a pound of pork.

One gill of rum, brandy, or whiskey, and at the rate of two quarts of salt, four quarts of vinegar, four pounds of soap, and one and a half pound candles, to every hundred rations.

Fifth. That the said party, of the first part, shall pay, or cause to be paid, to the said party of the second part, one cent for every ration which he shall issue, as before recited, as a full compensation of his trouble and expense in issuing the same.

In witness whereof, the said Acting Secretary of War, on behalf of the United States, and the said James Johnson, hath hereunto set their hands and seals, the day and year first above written.

JAMES JOHNSON.

THOMAS HENDERSON,
JORDON J. PEAKE.
Witnesses to the signing of James Johnson.

Know all men by these presents, That we, James Johnson, of Great Crossing, Kentucky, and Joel Johnson, Henry Johnson, William Johnson and John T. Johnson, of Scott county, Kentucky, are held and firmly bound unto the United States of America, in the sum of 45,000 dollars, lawful money of the said United States, for which payment, well and truly to be made, we bind ourselves, and each of us, our and each of our heirs, executors, and administrators, for and in the whole, jointly and severally, firmly by these presents. Sealed with our seals, dated the ninth day of January, in the year of our Lord one thousand eight hundred and eighteen, and in the forty-second year of the Independence of the said states.

The condition of this obligatiou is such, that if the above bounden James Johnson, his heirs, executors, or administrators, or any of them, shall do in all things, well and truly observe, perform, fulfil, accomplish, and keep all and singular the covenants, conditions, and agreements, whatsoever, which, on the part and behalf of the said James Johnson, his heirs, executors, or administrators, are, or ought to be, observed, performed, fulfilled, accomplished, and kept, comprised or mentioned in certain articles of agreement or contract, bearing date the sixth day of December, one thousand eight hundred and seventeen, made between George Graham, acting Secretary of War, and the said James Johnson, concerning the supply of rations to the troops of the United States, within the state of Indiana, and

the territories of Illinois and Missouri, according to the true intent, meaning, and purport, of the said articles of agreement or contract, then the above obligation to be void; otherwise to remain in full force and virtue.

JAMES JOHNSON,
JOEL JOHNSON,
HENRY JOHNSON,
BENJ. JOHNSON,
JOHN T. JOHNSON.

Sealed and delivered in the presence of
SABRET OFFUTT,
W. T. SMITH.

Articles of agreement, made on the twenty-fifth day of November, one thousand eight hundred and eighteen, between George Gibson, Commissary General of Subsistence, of the one part, and James Johnson of the other part.

This agreement witnesseth, that the said George Gibson, for and on behalf of the United States of America, and the said James Johnson, his heirs, executors, and administrators, have mutually agreed, and by these presents do mutually covenant and agree, to and with each other, as follows:

First. That the said James Johnson, his heirs, executors, or administrators, shall deliver, at the town of St. Louis, in the territory of Missouri,

Ten hundred and twenty-five hundred weight of bacon.
Six hundred and eighty-nine barrels of prime pork.
Twenty-eight hundred and seventy-one bushels of peas or beans.
Two thousand three hundred and forty-three barrels of kiln dried corn meal.
Fifteen hundred and eighty-two barrels of fine flour.
Six hundred and forty-three barrels of proof whiskey.
Two hundred and thirty hundred weight of soap.
Nine thousand six hundred and forty-five pounds of candles.
Four hundred and two bushels of salt.
Six thousand four hundred and thirty gallons of vinegar.

One half on the first day of June, eighteen hundred and nineteen, and the remainder on the first day of October, eighteen hundred and nineteen.

It is, however, distinctly understood, that the privilege is reserved to the United States of increasing or diminishing the quantities to be delivered, and of changing the periods of delivery, on giving previously sixty days notice.

Second. That the pork, peas, beans, flour, whiskey, salt, and vinegar, are to be delivered in strong and secure barrels, and the

soap and candles in strong and secure boxes, and of a convenient size for transportation.

Third. That the articles delivered pursuant to this contract shall be inspected at the time of delivery by the inspectors regularly appointed for the town of St. Louis, but if there should be no inspectors, then the assistant commissary of subsistence and the said James Johnson will appoint some person of known good character and well qualified for that purpose, who is to be under oath, the said James Johnson to be liable for the expenses of inspection, and for all other expenses, until the articles are safely delivered at such store-house as may be designated by the United States, at the town of St. Louis.

Fourth. That the said James Johnson shall receive for the articles delivered, by virtue of this contract, to wit:

Bacon per pound, eleven cents.
Prime pork per barrel, fifteen dollars.
Peas or beans per bushel, two dollars and thirty-three and one third cents.
Corn meal, kiln dried, per barrel, four dollars and fifty cents.
Fine flour per barrel, seven dollars.
Proof whiskey per gallon, fifty cents.
Soap per pound, ten cents.
Salt per bushel, sixty-six cents.
Vinegar per gallon, twenty-five cents.
Candles per pound, nineteen cents.

Fifth. That in case of failure or deficiency in the quantity of supplies stipulated to be delivered, then the commissary general of subsistence, or his assistant, shall have power to supply the deficiency, and the said James Johnson agrees to forfeit to the United States thirty-three and one third per cent. on the amount of such failure or deficiency, calculating the articles at the same rates at which they are named in this agreement, and the sum, thus found, shall be accordingly charged to the said James Johnson on the settlement of his accounts.

Sixth. That all losses sustained by the depredations of an enemy, in articles intended to be delivered by virtue of this contract, shall be paid for at the prices stipulated, and for other property necessarily used in transporting the same, at an appraised value, on the deposition of one or more creditable persons, and the certificate of a commissioned officer, when the same can be obtained, ascertaining the circumstances of the loss, and the amount of the articles for which compensation is claimed.

Seventh. That all such advances of money as may be made to said James Johnson, his heirs, executors, or administrators, for and on account of the supplies to be furnished pursuant to this agreement, shall be duly accounted for by the said James Johnson by way of set off against the amount of such supplies, and the surplus, if any, repaid to the United States immediately after the expiration of the term of this contract, together with an interest of six per centum per

annum, from the until the same shall be actually repaid; and if any balance shall, on settlement of the accounts of the said James Johnson, his heirs, executors, or administrators, be found due to him for or on account of the supplies furnished pursuant to this agreement, the same shall immediately be paid, and no unreasonable or unnecessary delay, on the part of the officers of the United States, shall be given to the settlement of the accounts of the said James Johnson, his heirs, executors, or administrators: *Provided, however*, That no member of Congress shall be admitted to any share or part of this contract, or any benefit to arise therefrom.

GEO. GIBSON, *Com. Gen of Sub.*
JAMES JOHNSON,
By R. M. Johnson, his attorney in fact.

Witnesses.
J. H. Hook,
John Mitchell.

Know all men by these presents, that we, James Johnson, John T. Johnson, Henry Johnson, William Ward, and Joel Johnson, are held and firmly bound unto the United States of America, in the sum of one hundred and seventy-three thousand dollars, lawful money of the United States, to be paid to the said United States, for which payment, well and truly to be made, we bind ourselves, and each of us, our and each of our heirs, executors, and administrators, for, and in the whole, jointly and severally, firmly by these presents. Sealed with our seals, dated the twenty fifth day of November, in the year of our Lord one thousand eight hundred and eighteen, in the forty-third year of the Independence of the said states.

The condition of this obligation is such, that if the above bounden James Johnson, John T. Johnson, Henry Johnson, William Ward, and Joel Johnson, their heirs, executors, or administrators, or any of them, shall do, in all things, well and truly observe, perform, fulfil, accomplish and keep, all and singular the covenants, conditions, and agreements, whatsoever, which, on the part and behalf of the said James Johnson, his heirs, executors, or administrators, are, or ought to be, preserved, performed, fulfilled, accomplished, and kept, comprised or mentioned in certain articles of agreement or contract, bearing date the twenty-fifth day of November, one thousand eight hundred and eighteen, made between George Gibson, commissary general of subsistence, and said James Johnson, concerning the supply and delivery of certain articles of subsistence stores, commonly called contractor's stores, at the town of St. Louis, in the terri-

tory of Missouri, according to the true intent and meaning of the said articles of agreement or contract, then the above obligation to be null and void, otherwise, to remain in full force and virtue.

JAMES JOHNSON,
WILLIAM WARD,
JOHN T. JOHNSON,
JOEL JOHNSON,
HENRY JOHNSON,
By R. M. Johnson, their attorney in fact.

Signed, sealed, and delivered in the presence of
J. H. HOOK,
JOHN MITCHELL.

DEPARTMENT OF WAR,
December 10, 1818.

SIR: You will place in deposite at Belle Fontaine by the 21st of March next, four hundred and twenty thousand complete rations.

I have the honor to be,
Your obedient servant,
J. C. CALHOUN.

J. JOHNSON, ESQ.

OFFICE OF THE COMMISSARY GENERAL OF SUBSISTENCE,
Washington, February 9, 1819.

SIR: You will receive in a day or two a requisition for two hundred and thirty thousand rations, in addition to the one already made for four hundred and thirty thousand, under the contract for Belle Fontaine; and as the whole number are to be transported to a great distance up the Mississippi and Missouri, I must request your particular attention to the quality of the rations, and to the soundness of the casks in which they are to be packed.

I am, sir, respectfully,
Your most obedient servant,
GEORGE GIBSON,
Commissary General of Subsistence.

Col. JAMES JOHNSON,
Great Crossings, Kentucky.

DEPARTMENT OF WAR,
February 10, 1819.

SIR; You will have in deposite at Belle Fontaine, on or before the first day of May next, two hundred and fifty thousand rations, in addition to the four hundred and thirty thousand already ordered.

I have the honor to be,
Your obedient servant,
J. C. CALHOUN.

Col. JAMES JOHNSON.

Extract of a letter from the Commissary General of Subsistence to colonel James Johnson, dated February 17, 1819.

"At Saint Louis no subsistence stores will be required on the first of June next. I have embraced the earliest opportunity of apprising you of the above change, and will be obliged by your acknowledging the receipt of this as soon as practicable."

Extract of a letter from the Commissary General of Subsistence to colonel James Johnson, dated Washington, July 10, 1819.

"At Saint Louis no subsistence stores will be required on the first of October, under your contract with this department."

CITY OF WASHINGTON, *February* 15, 1820.

SIR: I have taken the liberty of enclosing to you, for your inspection, a contract signed by general Jesup and James Johnson for transportation up the Missouri, &c. with certain interrogatories, with a view of asking your reply to them, as I know you have long resided on the western waters.

1st *Interrogatory*. How long have you resided on the western waters, and what opportunity has your pursuits in life given you of the nature of those waters, and the navigation of them?

2d. Please examine particularly the contract, and give me your opinion as to what would be a just compensation, under the obligations and stipulations of said contract, to transport provisions, and other articles, per pound, from the mouth of the Missouri to Council Bluffs, something upwards of 750 miles by the estimate of major Long; and such other views, facts, and opinions, as may seem relevant to my inquiries on the subject.

3d. Please state the condition of the western waters last summer and fall.

With respect, your obedient servant,

R. M. JOHNSON.

Col. REUBEN KEMPER,
City of Washington.

CITY OF WASHINGTON, *February* 23, 1820.

SIR: I received your letter of the 15th inst. enclosing a contract between general Jesup, Quartermaster General, and colonel James Johnson, of Kentucky, dated December 20, 1818, which contract I have examined with care and attention; and, in replying to your several interrogatories, it may not be improper for me to state, that although I never navigated the waters of the Missouri river above its mouth, yet my experience in the navigating the western waters has afforded me some opportunity of forming some comparative estimate of their difficulties.

Answer to interrogatory 1*st.* I have resided on the western waters since the fall of 1793, and from that time remained in the neighborhood of Cincinnati until the spring of 1799, having had but little opportunity before this of testing the difficulties by a participation in their navigation, other than the descending the river once from Brownsville to Cincinnati under the direction of others more experienced than myself, and, in one other time, from Connelstown in charge myself to the same place: thence to the parish of Feliciana, at that time in the province of Louisiana, and governed by Spain, and now incorporated into the state of Louisiana, where I established myself in business in company with John Smith, at that time of the Northwest Territory, and traded under the firm of Rueben Kemper & Co. In 1800 the copartnership was dissolved, and, in 1801, Nathan Kemper and myself entered into business in a small way, at the mouth of the Bayou Sard on the bank of the Mississippi, and kept a barge for the convenience of obtaining supplies of goods from New Orleans for our own establishment, and the call of the neighborhood, which we alternately commanded to and from New Orleans, leaving the other at home in charge of the establishment; after his marriage this duty devolved on me. In 1803 we were broken up by the Spanish government, and I turned my attention altogether to the navigation of the Mississippi and Red river to Natchitoches, which I pursued until 1810. In this pursuit I employed the most experienced Canadian hands, and, in the Red river particularly, I have been laboring with all hands incessantly sometimes a whole day to make three-quarters of a mile distance, cordelling and warping, and nothing but the rapid current to contend with, owing to the particular situation of the water; and have often been told by those up country hands, that that river was nothing to the Upper Mississippi and Missouri.

Answer to interrogatory 2d. I feel at a loss to state with precision what would be a just compensation, but could not myself feel free to engage to perform the duties, and convey such articles under the terms, for a less price to Council Bluffs than twenty cents per lb.; nor do I believe that any man could do more at that than make a fair compensation for his trouble and risk.

Answer to interrogatory 3d. I am confident they were never so low for so great a proportion of any one year since my first knowing them, nor do I believe, from information, that they were ever known to be so low to the oldest inhabitants for half the time at any one period.

My absence from the city for a day or two has delayed my answer, which I offer as my excuse.

Respectfully, your obedient servant,

REUBEN KEMPER.

Sworn to and subscribed this 29th day of February, 1820, before

JAMES M. VARNUM,

Justice of Peace, Washington county, D. C.

WASHINGTON, *January* 20, 1820.

DEAR SIR: In regard to the information you have done me the honor to ask of me, relative to the navigation of the Ohio, Mississippi, and Missouri rivers, I regret that I have not the necessary intelligence to give decisive, or, perhaps, even satisfactory, answers to the several queries proposed. But, as I have had some experience on all of these rivers, I will risk an opinion as to their comparative navigation, which may be of some service in elucidating the subjects of your inquiry.

The velocity of current of the Ohio, from Louisville to the Mississippi, when the water is at a moderate elevation, or sufficiently high for boats of heavy burden to pass clear of sand bars, may be estimated on an average of 3½ miles per hour. That of the Mississippi below the Ohio, at four miles per hour. That of the Mississippi between the Ohio and Missouri, at 4½ miles per hour: and that of the Missouri to the Council Bluffs, during the spring and summer freshets, when only it is navigable for boats of the above description, or for steam boats of heavy burden, at the rate of 5½ miles per hour. The principal difficulties to be encountered in the Mississippi are, rapid bends, shoals, and snags, in addition to a few rapids occasioned by rocks in the bed of the river, to wit: the Big and Little Chains, or bar of limestone, extending across the river about 30 miles above the mouth of the Ohio; Cape St. Comb; the Grand Tower; Capes Girardeau and Carondelet, &c.; at which respectively the current is so rapid for a short distance, as to render it difficult for steam boats of

ordinary speed, and keel boats with a moderate supply of hands, to make headway against it. In the Missouri, although there are no rapids of the description last mentioned, yet the bends are much more rapid and frequent than in the Mississippi; and the sand bars and snags far more numerous and difficult to pass. Extensive rafts of drift wood frequently present themselves, opposing serious inconvenience to the navigation of keel boats, as they often project far into the river, and the boatmen are thereby deprived of the means both of warping and polling. These obstructions not only retard the ascent of boats, but contribute, in a great degree, to render the navigation hazardous; particularly on the Missouri, where they are most numerous. In order to overcome them on this river, much skill and strength are required in boatmen, who cannot succeed to advantage till they have had considerable experience. An experienced crew can perform a voyage in little more than half of the time that is required by raw hands. Voyages from St. Louis to the Council Bluffs have been performed by a select French crew in 45 or 50 days, while half the distance has sometimes required a longer time in navigating.

In regard to the second query, which relates to the outfits required in boating on the Missouri, over what may be requisite on the Ohio and Mississippi, it is obvious that the expense in hands, cordage, and other outfits, will be at least in proportion to the rapidity or strength of the currents respectively. But, as it is a well established fact, that, in the propelling of bodies through fluids, four times the power is required to give double speed, it is manifest, that the difficulty of ascending rapid currents, compared with those more moderate, increases in a greater proportion than that above mentioned.

Boats laden for the navigation of the Missouri cannot, with safety, be freighted so deep as on other rivers of the west. In warping around rapid points, rafts, &c. they are liable to be overset by the draft of the warp, as they necessarily assume a direction oblique to that in which the propelling power is applied, which throws them out of their trim or horizontal position. In swinging upon sawyers, sand bars, &c. they are also in danger of oversetting when deeply laden.

In answer to the third query relative to the repairs that steam boats require on the Missouri, there can be no doubt that they require them much oftener than on the Ohio or Mississippi.

The great quantity of mud with which the waters of the former are charged, particularly in the stages suitable for steam boat navigation, tends to clog the boilers to such a degree that they need cleansing as often as once in 20 or 24 hours running time. A portion of the mud enters into the cylinders and joints of the engine, and wears upon the moving parts of the machinery, particularly the piston and valves, to such a degree that they require very frequently to be readjusted. These difficulties, added to the accidents that occur from running upon snags, logs, and sand bars, concealed under water, which, as before observed, are far more numerous in the Missouri than in the Mississippi and Ohio, make it necessary that steam boats

should be repaired more frequently on the former than on either of the last mentioned rivers.

The effect of the current on the Western Engineer was much greater than I had ever anticipated, judging from the best information I could obtain relative to the navigation of the Missouri. At some of the most rapid points, her speed was hardly equal to the velocity of the current, and she could make headway only by taking the most moderate part of the channel, which, on many occasions, was difficult to find. We had occasion to cleanse her boilers once in fifteen hours at least, and to readjust the valves of the engine at least as often. In an engine of low pressure, perhaps the effects of the mud would not be so unfavorable, yet they cannot fail to prove a serious hindrance to steam navigation, till some expedient is devised to remedy the inconvenience.

In regard to the expense of navigating on the Missouri, or indeed any other river of the west, I have no data on hand whence to draw satisfactory conclusions. It is obvious, however, that the subsistence of a crew in an unsettled country must be far more expensive than in a country where the necessaries of life are constantly to be had near at hand: and, in case of accident to the boat, sickness of hands, or any other casualty calculated to interrupt a voyage, more or less of which are always to be apprehended, particularly in a current so rapid and difficult to navigate as that of Missouri, the expense must be very considerably enhanced.

Should the foregoing remarks contribute in any degree to elucidate the subjects of your inquiry, it will afford me much satisfaction. In the mean time, should I be able to furnish you with any other intelligence bearing upon the subject, it shall be cheerfully given.

I am, dear sir, very respectfully,

Your obedient and very humble servant,

S. H. LONG.

Hon. R. M. Johnson.

Indian Trade Office,
Georgetown, February 22, 1820.

Dear Sir: I have just received some transportation accounts from St. Louis for last year. I find the price of freight to Fort Osage in August last. from St. Louis, was 3¾ cents per lb. which is ¾ of a cent per pound more than we paid the preceding year. If this in-

formation will aid you in getting your brother's accounts passed, I will furnish the voucher whenever called on.

With great respect and esteem,

Your most obedient servant,

J. W. BRONAUGH.

Hon. R. M. JOHNSON.

Remark by Col. Johnson.

At this rate, taking into view the ascent of the Missouri, it would be three times $3\frac{2}{3} = 11$ cents.

WASHINGTON CITY, *February* 9, 1820.

SIR: At your request I have attentively examined the contract dated December 2d, 1818, between General Jesup, as quartermaster general, and your brother, Col. James Johnson, of Kentucky, with a view to make up an opinion as to a fair and equitable allowance, under the conditions and stipulations of that contract, for the transportation of provisions and munitions of war up the Missouri river; and now proceed to answer the several interrogations you have propounded to me.

Answer to 1st interrogation. I am well acquainted with the risk and expense of navigating the western waters; having been for many years a contractor to procure and issue rations to the troops stationed on those waters. I was the first contractor that furnished and issued rations to the troops at Fort Osage, on the Missouri river.

Answer to 2d interrogation. I have resided in Kentucky for more than twenty-seven years; a considerable portion of which period I have been engaged in procuring and transporting provisions, as contractor and as navy agent; and occasionally the products of the country on private account. These circumstances, as I have stated above, justify the opinion I have expressed, of having had much experience; consequently, competent to form a correct opinion or estimate of the profits arising from the transportation on the western waters, (after making the necessary deductions for risk and expense.)

Answer to 3d interrogation. I have uniformly believed and expressed an opinion that the risk and expense of navigating the Missouri river was great, but particularly in steam boats.

Answer to 4th interrogation. The price of freight from New Orleans to Kentucky has fallen 100 per cent. within the last year.

Answer to 5th interrogation. I do not conceive the ordinary method of bidding for contracts a just criterion of compensation under your brother's contract, nor in any case whatever. Men of desperate and embarrassed circumstances frequently offer for government contracts, at reduced prices, under the hope that the advances usually made

will enable them to meet their most pressing demands, and rely on resources to comply with their contracts not within their power to command when required. In these cases the individual fails to perform the stipulations of his contract, and government generally experience much inconveniences, and often great loss.

Answer to 6th interrogation. Yes; I have a distinct recollection of conversing with your brother, Colonel James Johnson, and of pointing out risks and expenses incident to navigating the river Missouri, which he acknowledged he had overlooked; and also of writing to you, I think at his request, soon afterwards, in which letter I went into a calculation shewing the profits usually made by owners of steam boats, from New Orleans to Kentucky, the price of freight at that, he said, being five cents per pound; and that, without incurring much risk, steam boats reach New Orleans from Louisville in ten and twelve days, and return in from twenty-five to thirty days, which would afford a profit beyond what you could calculate on receiving from transportation on the Missouri river, and I distinctly recollect of giving my opinion, that, if you made a contract with government, for your brother, to transport for less than ten cents per pound, for the first 400 miles, you would ruin him. I further stated that the price ought to increase in a ratio of —— per cent. for each additional 400 miles. No circumstance has occurred to make me for a moment doubt the correctness of the opinion then communicated to you. Indeed, were Colonel James Johnson to now propose to surrender to me his contract, under the view I have taken of it, with all the profits and emoluments consequent thereon, upon condition I would take his steam boats and repay all disbursements, I would not for a moment hesitate in rejecting the proposition. I consider one or more of them (the steam boats) in imminent danger of either being totally destroyed by the ice in the river, or other casualties, or essentially injured.

Answer to 7th interrogation. Yes; I am well acquainted with Col. James Johnson, and his brothers, who united their exertions in the execution of his contract; they are men of economy, arrangement, and great industry; particularly the former, whose capacity for business, integrity, and devotion to his country, is surpassed by no man in our state. His exertions to perform his contract with government have been great and unremitted. Serious doubts, however, have been entertained and expressed by many of his friends, that, owing to his immense disbursements to effect his contract to the entire satisfaction of government, he would ultimately suffer loss. I may here add that his numerous friends in the state have taken a deep interest in his affairs, and would deeply regret should government withhold from him such compensation as would remunerate his exertions to aid their views and wishes, in the establishment of posts in advance of our settlements, which in future will completely protect and shield them from the incursions of the savages.

I have given, sir, what appears to me explicit answers to your queries. Should either the referees or yourself think otherwise, I can have no objections to making them so; and of verifying on oath what I have stated to be true to the best of my recollection and judgment.

I have the honor to be, sir, respectfully,

Your obedient servant,

JAMES MORRISON.

Hon. R. M. Johnson.

In answer to your 8th interrogation now asked, as to the *now* value of steam boat property, compared with what it was some twelve months past, my opinion is, it has depreciated nearly, if not altogether, one half. Never having had an interest in a steam boat, I can only speak as to the estimation in which that property is now held. I would not now give one half the price steam boats cost at that time. I consider them bad property.

JAMES MORRISON.

Sworn and subscribed to before me, a justice of the peace in and for the county of Washington, District of Columbia.
February 29, 1820.

JAMES M. VARNUM.

Washington, *February* 8, 1820.

Sir: Agreeable to your request of the 6th inst. I shall endeavor, as far as in me lies, to answer satisfactorily the several questions contained therein.

The navigation of the Ohio, and more or less of all the western waters, is attended with many difficulties, in stages of low water, owing to the snags, sawyers, &c. which abound in those rivers, and the numerous sand bars which are formed almost every freshet, and which change their position quite as often; making the navigation dangerous, tedious, and very expensive. The Ohio has several rapids, or falls, which require great powers of either steam or men to ascend; such as the falls of the Ohio and Letart's Rapids. The Mississippi has likewise its rapids, as at Cape Girardeau, Carondelet, Demoin, and Rock river, which are rendered more difficult than the Ohio by the superior velocity of the current, and by the greater extent of the rapids, being from three to seven miles. The steam boats that navigate the Mississippi between St. Louis and New Orleans, generally have a passage up from 25 to 30 days, and very often much longer; those boats, however, do not encounter a fourth part of the

obstacles that present themselves in the navigation of the Missouri, such as sand bars, sawyers, planters, and rafts; which follow each other in rapid succession, and necessarily make it more dangerous, tedious, and of course expensive, than either of the aforementioned rivers. Another serious inconvenience and expense, (owing to the extreme muddy state of its waters,) is the daily cleansing required by the machinery. Again: The obtaining of wood for the use of the steam boats is attended with considerable labor and detention in cutting and making use of it in its green state. Common keel boats experience no delay from the above mentioned circumstances; therefore I cannot think they would be a proper criterion to go by, for the price of transportation in steam boats.

The unusually low state of the water during the whole of the last season must have greatly increased the difficulties of the navigation. Steam boats of almost every size were seen lying on the sand bars in the Ohio, and had it not been for the unremitted and most strenuous exertions of Colonel James Johnson and his agents, it is my firm belief, under the many difficulties they had to encounter, the steam boats had never ascended as far as they now are.

In answering your second question, I must, in justice to myself, say, that I am not *perfectly* acquainted with the prices given for transportation in those waters; but, under all considerations of the contract entered into by Col. James Johnson with Gen. Jesup, I do not think that Colonel Johnson would be more than saved at from 18 to 20 cents per pound to Council Bluffs, nor do I believe the government could have obtained keel boats for less than 8 to 12 cents to Council Bluffs.

I had the pleasure of seeing two of Colonel Johnson's steam boats (names not now remembered) ascend the Mississippi in coming to St. Louis, and afterwards in going from Belle Fontaine up the Missouri, and considered their progress equal to the generality of the steam boats that I had seen in those waters.

I have the honor to be, respectfully,

Sir, your obedient servant,

JOHN HALL.

Hon. R. M. Johnson.

Sworn and subscribed to this 29th February, 1820, before me.

JAMES M. VARNUM, *Justice Peace,*

Washington County, District of Columbia.

WASHINGTON, *February* 10, 1826.

SIR: I have received your favor, in which I am requested to read a contract dated 2d December, 1818, signed by general Jesup and col. James Johnson, for transportation of provisions, munitions of war, &c. up Missouri, accompanied with several interrogations for me to answer, that my opinion may be laid before the referees on the subject. I have read and considered, with great attention, the several conditions and stipulations in said contract, and now proceed to answer your several inquiries without separating them. I have lived in the western country twenty-five years, and during eighteen of that time I have been engaged in active trad' on the waters of the Ohio and Mississippi; in this period I have been myself ten times to New Orleans by water, and was, at all times, well acquainted with the price of produce, carriage, freight, and every thing relative to the trade of the western waters. I have never traded up the Missouri; of course have no personal knowledge of its perils, hazards, and difficulties; but the fact is notorious and universally acknowledged, that the water, or current, is much more rapid, and the natural obstructions much greater, than on the Ohio and Mississippi, and the transportation more expensive; and, from my own experience, as stated previously, and from my intercourse with others from whom I have obtained the most correct information, I consider myself well qualified to judge of the general character and compensation which should be allowed in the execution of such a contract as the one which you have placed before me, and I have made my calculations, and considered much of the subject, taking into view the expenditures and the hazards of attempting the transportation of provisions and munitions of war up the Missouri in steam boats. I am of the opinion that no responsible person would have undertaken the transportation stipulated in said contract, for less than three times the ordinary freight in keel boats; at all events, after the most deliberate consideration, I would not have undertaken the execution myself for a less sum; for the contract requires at least two steam boats, and more conditionally; besides, it is evident the contractor must have more or less of keel boats also at command. In fact, as the attempt was to have been made in steam boats, and, if that failed, to furnish keels, I would not have undertaken the discharge of such obligations without a positive stipulation that government should take the steam boats at the original cost and repairs, if I had ever chosen to give them up; for to have to procure steam boats for such a trial and to fail in the attempt, and to have to furnish keels, with all attendant expenses and hazard, and to continue the transportation, and all the property on the hands of the contractor, I consider that it would be ruinous to any man who could not sustain himself upon his own resources. I consider the experiment of steam boat navigation up the Missouri of vast moment to the citizens of the United States, particularly in the west, and no individual can make that experiment without hazard of great loss. I consider it an experiment worthy of the government. The last year,

did not furnish a fair opportunity how far this mode of navigation would succeed. I have known colonel James Johnson for about fourteen years personally, and for integrity, enterprise, and patriotism, he is surpassed by few men; his gallantry in the late war is well known.

Freight from New Orleans, which has been six cents, has fallen to three within the last six or nine months in steam boats, and, from present appearances, I am of opinion that steam boat business on the western waters must ruin many of the proprietors of this kind of property. At the date of your contract steam boat navigation was considered much more profitable than keels, perhaps four times as much so.

Very respectfully,
Your obedient servant,

JOHN H. PIATT.

Colonel R. M. Johnson.

Being further interrogated as to the value of steam boat property at the date of said contract, and at this time, I do not consider them of more than half the value. I would not give at this time more than half what a steam boat, at the date of said contract, would have sold for.

JOHN H. PIATT.

Sworn and subscribed to this 29th day of February, 1820, before me.

JAMES M. VARNUM,
Justice of Peace, Washington county, D. C.

Washington, *February* 15, 1820.

Dear Sir: The contract in which your brother Colonel James Johnson engages with Brigadier Gen. Jesup, quartermaster general, to transport up the Missouri river provisions, military stores, &c. by furnishing for that purpose two or more steam boats, accompanied with your letter of interrogatories, I had the honor of receiving a few days since, and take the first moment of leisure to answer them as presented, agreeable to my best judgment and opportunities of information.

Interrogatory 1*st*. Your knowledge of the nature and character of the river Missouri?

Answer. For nearly the last two years I have been most deeply interested and actively employed in transporting merchandise, &c. for the troops up the river Missouri, and the last year as high up as the Council Bluffs, which place I have once visited in that time.

Int. 2d. When does the Missouri generally subside?

Ans. It is my impression about the 15th July, though it is subject to occasional rises for one month afterwards.

Int. 3d. What was the condition of the water of the Missouri last year?

Ans. Owing to the great and extraordinary drought that prevailed, not only in the western country, but I believe throughout the United States, I was informed by the oldest traders residing on the Missouri, that the river was lower, and its navigation worse, than they ever knew it before.

Int. 4th. From your knowledge of the navigation of the Missouri, and taking into view all the circumstances of the extraordinary season which has just passed, and justly considering all natural impediments, for what price would you, if it were in your power, under the above view, bind yourself faithfully to carry into effect the stipulations of the above named contract?

Ans. Ever since I have had any acquaintance with the navigation of the river in question, I have doubted whether any steam boat can navigate it with profit or safety, in which opinion Major Long concurred with me after his arrival near the Council Bluffs. Hence, scarcely any price would induce me to undertake such a contract as the one alluded to, unless the steam boats were guarantied against all the damages and dangers to which they would be liable: then, calculating upon the probability of a part, if not all, miscarrying short of their destination, which would require that keels should follow and take up the loading, I should be afraid, for such an undertaking, accepting of twice the price of freight allowed for transporting in keels.

With respect to the character of Major Sebree, your brother's agent, I cannot speak from my own knowledge, as I believe my first acquaintance with him was at the Council Bluffs last fall; but recollect hearing Lieut. Browne, quartermaster of the 6th infantry, who had every opportunity of knowing him, speak in the highest terms of his industry and arrangement. Of Captain Craig, who commanded the steam boat Expedition, my acquaintance is nearly as limited, but know that his qualifications, as its commander, were considered of the first order; on which subject I heard Colonel Chambers express himself most favorably, and other officers state that they believed that no other person, in similar circumstances, could have effected as much; as they considered that he possessed most extraordinary resources in overcoming the difficulties and dangers attending the navigation of the Missouri in steam boats.

Int. 5th. Was not Capt. Colefax appointed by my brother to the command of the Johnson in consequence of the special recommendations of Colonel Atkinson?

Ans. I heard Colonel Atkinson say he had caused the appointment of Capt. Colefax.

Int. 6th. Did you not recommend to my brother the purchase of the Expedition, and what was the general opinion entertained at Lou-

isville, Ky. of the Johnson, at the time she was preparing to proceed to St. Louis for the purpose of ascending the Missouri?

Ans. I was on board the Expedition with your brother when she towed up the falls of the Ohio the steam boat Independence. In the course of her progress your brother frequently asked me if I believed any part of the Missouri was as rapid as the most difficult places over which we passed; to which I replied that I had never seen as strong a current on any part of the Missouri; that I believed, if any steam boat could navigate it, it was the Expedition, as I then believed her to be the finest boat I had ever seen; but I further observed, agreeably to my best recollection, that it was a doubt with me whether any steam boat was calculated to navigate that river. The Johnson returned from New Orleans last spring, while I was at Louisville, to which place she performed the trip in 25 days, which I believe was the quickest that had ever been performed. Returning to St. Louis shortly afterwards prevented my being able to learn the current opinion respecting her at that time.

Int. 7th. Were you not at the Council Bluffs when Mr. Holderman's boats, that were employed by the quartermaster at St. Louis, arrived from the Jefferson, and be pleased to state the probable tonnage of each, and the probable amount of freight delivered by each?

Ans. I was; I however noticed but one of the boats alluded to: I suppose it would carry, on the Ohio and Mississippi, about 30 tons, and I judged, from the appearance of the loading, that it hardly delivered 20 tons.

I have the honor to be, with the highest respect,
Your obedient servant,

JOHN O'FALLON.

Col. R. M. Johnson,
Senator in Congress.

This day John O'Fallon came before me, a Justice of the Peace, and made oath to the within to the best of his knowledge and belief.

State of Maryland, Baltimore county, to wit:

On this 15th day of March, 1820, before the subscriber, one of the Justices of the Peace for the county and state aforesaid, personally appeared John O'Fallon, and made oath, on the Holy Evangelists of Almighty God, that the within indenture, or instrument of writing, is just and true, as stated, to the best of his knowledge and belief.

WM. ASHMAN.

State of Maryland, Baltimore county, sct:

I hereby certify, that William Ashman, gentleman, before whom the above deposition was made, and who has thereto subscribed his

name, was, at the time of so doing, a Justice of the Peace in and for the county aforesaid, duly commissioned and sworn.

In testimony whereof, I have hereunto set my hand and seal of my office, this 15th day of March, 1820.

WM. GIBSON,
Clerk Baltimore county Court.

Questions put to Thomas F. Riddick, by the agent of James Johnson, Esquire, of Scott county, Kentucky, and the answers of said Riddick thereto, as follows:

Question 1st. How long have you resided in the western country, and at what points? What have been your opportunities of understanding the nature of the navigation of the western waters generally?

Answer. I have resided in the town of St. Louis for sixteen years last past, and have been, for the most part of that time, engaged in mercantile pursuits connected with the navigation of the western waters.

I have always found that, from the month of June to January, and frequently till February, it is extremely difficult, tedious, and hazardous, to navigate the Ohio and its tributary waters.

I have also found that the Mississippi above the mouth of Ohio, is seldom navigable during the winter months, and the most part of the first spring month, owing to low water and floating ice.

That from April to August, inclusive, the Missouri is in its best state for navigation; but that it is, at all times, considered as a turbulent, uncertain, and dangerous river, obstructed by sand bars, and the channel, in many places, also obstructed by *sawyers*, and frequently changing its position.

That the Mississippi above the mouth of Missouri is a river of easy navigation, with the exception of the two rapids, Demoin and Rock river, which are impassable for keel boats of twenty tons burthen in all times of low water, and very frequently for boats of a much smaller size.

Question 2d. How much has the price of freight fallen since the period of the 2d December, 1818, on those waters that have been usually navigated: and also what has been the depreciation in value of steam boat property on the western waters, within the same time?

Answer. The price of freight has fallen since that period at least one-half, particularly on all the western waters where steam boat navigation is common.

I believe that steam boats can now be purchased for two-fifths of the price that they would have cost in 1818. I am certain that steam boats on the western waters are not estimated at more than half their cost in 1818.

Question 3d. Except the navigation of the Mississippi and Missouri, in the transportation of provisions, munitions of war, and other articles for government purposes, how many keel and steam boats were employed on the Mississippi and Missouri: and but for government purposes would not a great proportion of the steam and keel boat tonnage have remained unemployed?

Answer. The transportation of provisions, &c. for government purposes, no doubt gave employment to a great number of boats that must otherwise have remained idle; owing to the lowness of the water very few boats were employed for any other purpose.

Question 4th. Speak of the condition and state of the western waters as to navigation the last spring, summer, and fall; and compare it with preceding years.

Answer. From my own observation, and from the opinion of the old inhabitants generally, the western waters were never, within the last sixteen years, as low or as difficult of navigation. I do not think that any previous ordinary season furnishes a just criterion by which to estimate the value of transportation on those rivers during the last year.

Given under my hand, at Washington City, this 6th day of March, 1820.

THOMAS F. RIDDICK.

County of Washington, District of Columbia:

The before named Thomas F. Riddick made oath to the truth of the foregoing statement, this 6th day of March, 1820, before

JAMES M. VARNUM, *J. P.*

GEORGETOWN, *February*, 16, 1820.

DEAR SIR: On the subject of the price of freight from the mouth of Missouri to Council Bluffs. In the first place I consider the navigation of that river much more difficult than any I have ever attempted to navigate. You have one of the strongest currents to contend with that I have ever witnessed, filled with sand bars, logs, roots, snags, &c.; the sand bars continually changing. Where you find the channel to day you may next week find a dry beach or bar, and the channel in a different place; and from the constant changing of the sand bars, the falling in of the banks, the water becomes very muddy, which makes it impossible to see the many logs that are concealed under water, and it is not uncommon for us to cut our way through crowds of timber that have fallen in, and where the only channel can be had to pass with our boats; and it is not uncommon to hear of their being lost or much damaged. I think that there did not exceed thirty or thirty-five keel boats the last season engaged

in the transporting of public property to Council Bluffs; two of them were entirely lost, and one sunk that was raised again. One of those lost belonged to government, the other to Mr. Holderman, and loaded with ordnance; the one sunk belonged to colonel Johnson, which was raised and the cargo saved, which was not the case in the other two cases. And, from my experience the last season, think I hazard nothing in saying that one-tenth of the boats that attempt to ascend that river are either lost or materially damaged. Not only this, but you cannot load your boats near so heavy to ascend that river as they can be loaded to ascend the Mississippi or Ohio, and you must have at least one-third or one-half more hands than you have on the Mississippi or Ohio. Your boats have to be much better rigged than would do to navigate those streams as above. A boat that will carry 35 tons on the Mississippi or Ohio, and work from eight to twelve hands, will only take 25 or 30 tons on the Missouri, and you must have from 20 to 24 hands. Those boats will cost, when properly rigged for the Missouri, from eight hundred to one thousand dollars, and only one trip can be made in the season; then you have to keep your boats over the winter, which, in many cases, are either lost in the ice or much damaged, so that you have them to repair, and rig out afresh what may be saved.

Steam boats that will safely freight 90 or 100 tons on the Mississippi and Ohio, would not be safe on the Missouri with more than 50 or 60 tons; not only so, but you have to lay in a double set of rigging, such as cables, anchors, and other cordage. You also have to lay in much larger stores for your boat-hands, as no provisions can be had after you leave the settlements; therefore less freight can be taken. You must give your hands more whiskey than would do on other rivers, the labor being much harder. You will be compelled to have, in addition to what you got last season, at least five thousand dollars worth of cordage; which is as little as would be safe to set out with. You also must have nearly double the number of hands as would do on the Mississippi or Ohio: that is not all; after you leave the settlements you will have much more difficulty in procuring fuel, which will detain the boats every day three or four hours, and you cannot go any of a night: this is a great loss of fuel, as it will take the greater part of a cord of wood to raise steam after your fires have been out for the night; which is not the case in the New Orleans trade. You may make a trip to Orleans from Louisville and back in 50 or 60 days: the price of freight from Orleans to Louisville was in 1818, and 1819, from 4½ to 6 cents per lb. And when I come to consider the immense capital you have in steam and keel boats, and that afloat in the most difficult stream to navigate in the west, I am of opinion that not less than from 18 to 20 cents per lb. would justify the undertaking to freight from the mouth of the Missouri to Council Bluffs; and believe this sum is not as much as was given at the time of the Indian war in the time of Wayne. I was the principal agent for John Craig in freighting of five hundred barrels of flour from the mouth of the Great Miami to the Falls of Greensville

creek, about 15 miles below Fort Greensville; the place where Wayne made a treaty with the Indians. I think the distance does not exceed 100 or 120 miles: he made a contract with the quartermaster to deliver that number of barrels of flour at Greensville, for which he was to receive eight dollars per barrel; that was equal to four cents per lb. and the navigation of the river not to compare with that of Missouri as to difficulty and hazard. The distance is from the mouth of Missouri, as laid down by Lewis & Clark, I believe, 650 miles, and as made by major Long 773, to Manuel Lesaw's Fort, 10 miles below the Bluffs: then if major Long should be right in his views of the distance, judging from point to point, when we come to make the many windings to keep the channel, I think it would not be short of 800 miles; then that compared with the distance from the mouth of Big Miami to Greensville, and the difficulty of ascending the river much greater, do not think that I am extravagant when I say from the mouth of Missouri to Council Bluffs is worth from 18 to 20 cents per lb.; put it at the price given on the Miami, and it would amount to 32 cents per lb.

Respectfully,

URIEL SEBREE.

Kentucky, Scott county, to wit:

Uriel Sebree this day personally appeared before me, a Justice of the Peace for said county, and made oath that the within statement is true to the best of his knowledge and belief. Witness my hand, this 16th day of February, 1820.

DAVID THOMPSON.

I hereby certify that I have had very considerable experience in navigating in keel boats on the western waters; also, some experience in navigating in steam boats. I have been employed in this kind of business on the Mississippi, Ohio, Tennessee, and Missouri river as far up as Fort Osage. I have carefully examined the foregoing affidavit or statement of Major Uriel Sebree, and I feel no hesitation in subscribing to his statements, under the firm belief of their correctness.

Given under my hand, this 18th day of February, 1820.

JOHN H. MORRISON.

SCOTT COUNTY, ss.

The above statement was sworn to before me by John H. Morrison. Given under my hand, this 18th day of February, 1820.

DAVID THOMPSON, *J. P.*

The statement of Christopher Crowe, at the request of Col. R. M. Johnson, on the subject of the transportation contract of Col. James Johnson with the War Department, dated 2d December, 1818.

Question 1*st.* State the part you acted, as employed by James Johnson, in this matter.

Answer. I was clerk and steersman to the steam boat Expedition, from Louisville until she stopped at Cow Island, in the Missouri, and my wages were sixty dollars per month.

Question 2*d.* Relate what you know as to the disagreement of James Johnson and the officers of government, as to the inspection of the provision after your arrival at Belle Fontaine, and the time consumed in consequence.

Answer. I was present the whole time of the detention at this post. The disagreement did not arise from a refusal on the part of James Johnson to have the provisions inspected, for he was always ready and anxious, from the first day of his arrival, to have them inspected; but the officers, Major Hemstead, I believe, or Maj. Wilson, thought that it was indispensable the provisions should be repacked and salted, to put beyond a doubt the goodness and soundness of the provisions for twelve months. Colonel Johnson was of opinion that, if he delivered good, sound, and wholesome provisions, as in ordinary cases, that any extra expense of repacking and resalting to which the officers might resort for great caution, should be at the expense of the government. As evidence that this was the true state of the disagreement, the whole of this matter transpired previous to the inspection of the provisions. As to the delay in consequence, I do not believe that, so far as Colonel Johnson was concerned, any delay did take place, not even one day, as he was always ready and anxious to go on with the inspection, and proffered to inspect on board or on the shore; the shore being preferred, part of the provisions were landed, but the guard being withdrawn by order of Col. Chambers, or some other officer, the civil authority produced a difficulty, and the provisions were taken to the steam boats and there remained until the boats dropped down to the mouth of the Missouri. James Johnson never did refuse to go on with and aid in the inspection; and when he found that Major Hemstead would not find the salt, &c. he agreed to purchase it himself, and look to government for pay.

Question 3*d.* Speak of the inspection of the provisions and the delay for want of salt, the goodness of the pork, the amount, &c. required, and every thing connected with these transactions at the mouth of Missouri; also, speak of the delays for want of provisions, from the time you commenced inspection until the boats sailed for Council Bluffs.

Answer. I was appointed with Major Wilson, by Colonel James Johnson, to inspect the pork, and I remained with him at this business until we inspected about 1,000 barrels, of which not more than 8 or 10 barrels were entirely rejected. Some other barrels, the

number not now recollected, were not considered as sound as was requisite; but, upon putting these barrels of pork in brine of the good barrels, in a few days they were received as good. The remainder of the pork was inspected by Major Wilson and Wm. D. Hubbell. I often heard Major Wilson declare that it was a good lot of pork that Colonel Johnson had furnished, and I am of opinion that the pork of James Johnson, which he delivered as aforesaid, was as good as when resalted, and would have kept as long, except the barrels aforesaid, which required putting in brine. I do moreover state that taking away the brine and resorting to the resalting was the cause why some of the pork was condemed on the way in our progress to Council Bluffs. This was the opinion of several officers whose minds I heard on the subject. As to the delay for want of salt, I do state that, during the time that I was associated with Major Wilson, I do not believe that we were interrupted two days. The boat that went to St. Louis after salt may have been delayed by unfavorable winds, or other causes, and not imputable to the neglect of Colonel James Johnson, who made use of every exertion to procure salt; nor have I any reason to believe that there was any greater delay after I quit the inspection, as I was present attending to other matters, and heard no complaint of delay on this ground. The hands of Colonel James Johnson alone did all the labor of inspecting, repacking, and resalting, during the time I was engaged in this business. After I quit it, I believe the soldiers occasionally did aid, but the principal labor of the soldiers was in unloading and loading the boats. As to the delays for want of provisions to inspect, from the time we commenced until the sailing of the boats, I am not able to speak with accuracy, but do not believe that more than six days was delayed from this cause.

Question 4th. Speak of the repairs of the steam boats Johnson and Expedition, after their arrival at Belle Fontaine, until you left the mouth of Missouri, the nature of the repairs, and the delay that would necessarily have been occasioned by their repairs.

Answer. The Johnson and Expedition were in good order to continue their sailing to the place of destination, from their first arrival, except some repairs common to steam boats, and not at all affecting the materials, or the operations of the boats: the means of repairing were in each boat, and at no time would the repairs of either of these boats have delayed their sailing forty-eight hours at the farthest.

Question 5th. Speak of the crew of the Expedition and Johnson; their character; how many times Colonel Chambers visited the steam boat Expedition; whether he ever sailed in her or not?

Answer. I shall speak of the crew of the Expedition alone, as I had not a sufficient opportunity to know the officers and crew of the Johnson; I know nothing however unfavorable of that crew. As to the crew of the Expedition, they were obedient, subservient, industrious, enterprising, prompt, and efficient. I question whether a crew could have been more efficient on the western waters. Colonel Chambers visited us four or five times; I do not believe that he was

ever on the boat while she was sailing. When he did visit us he remained but a short time. I think he dined with us twice, once at St. Louis and once at Belle Fontaine. I do not believe that he had a sufficient opportunity to judge of the officers, or of the hands. I heard Colonel Chambers say, at Cow Island, that we had surpassed his expectations in overcoming the difficulties of the navigation (or words to that effect) from Fort Osage to Cow Island; the part of the river we ascended together, when he aided us over a bar of 5 or 5½ feet water.

Question 6th. Give all the information in your power as to the cause why the Expedition steam boat did not progress to Council Bluffs.

Answer. It was on account of the low water, and nothing else. We had in our progress three or four times to get over bars that would not float the boat, which sunk five feet ten inches. With a channel of six to ten feet the Expedition and Johnson could have gone on to any point of the Missouri. We had to use anchors, cables, and other means, to get over these bars; and it is almost impossible to describe the difficulties which we had to encounter in our ascent, which were augmented much by the low state of the water.

Col. Atkinson was also of the opinion that the low state of the water would prevent the progress of the steam boat Expedition, which was in front; and he issued an order accordingly that the steam boat should stop, and the provisions be sent on in keel boats.

Question 7th. Were you in the Johnson steam boat when she made a trip to New Orleans and back? Was Wm. D. Hubbell with you? In what character did you act, and what was the employment of Mr. Hubbell?

Answer. I was in the steam boat Johnson when she made this trip to New Orleans, and back to Louisville, in capacity of a steersman. Mr. Hubbell acted as the clerk. The trip from New Orleans to Louisville was performed in twenty-five running days. When we came to Louisville the Johnson had a third more power added to her engine, to contend with the waters of Missouri.

I do state that I have carefully examined the statement of William D. Hubbell, and the certificate of Capt. M'Guire, in relation to the same, dated Frankfort, 28th January, 1820, and I know the facts to be correct and true as it relates to the price of freight from New Orleans to Louisville, during the years 1818 and 1819, and I concur in the opinions expressed by said Hubbell, as to the allowance which I consider a fair compensation for transportation to Cow Island and Council Bluffs.

CHRS. CROW.

Sworn and subscribed to this 2d day of March, 1820, before

JAMES M. VARNUM,

Justice Peace for Washington county, D. C.

The certificate of William D. Hubbell on the amount of freight that ought to be required on the Mississippi, and that contrasted with the freight on the Missouri.

He states that, during the fall and winter of the years 1818 and 1819, the freight on the Mississippi and Ohio rivers, from New Orleans to Louisville, was one cent down, and from four and a half to six cents up; and that, taking detentions into consideration, a trip can be performed in every sixty days.

The size of the steam boat Johnson conveys ninety tons down and up said river. The Expedition carried to St. Lewis 225 tons, and the Thomas Jefferson about 200 tons; and, from the difficulties of the Missouri, it would not answer to load with more than half that amount.

That he has navigated the Mississippi and Missouri with the Johnson, and that he can perform a trip on the Mississippi and Ohio, from New Orleans to Louisville, and down again as soon as he can perform one from St. Louis to Cow Island with half the same load.

That the difficulties of the river increase very much, and that it requires, within about five days, as long to go from Cow Island to the Council Bluffs, as from St. Louis to Cow Island, and that the difficulties on the Missouri are three or four times as great as those on the Mississippi, and that it requires about twenty-two men to man a keel boat of thirty or thirty-five tons on the Missouri, when twelve is a common crew on the Mississippi for a boat of the same size. And, from the above, he does not hesitate to say, that the freight from St. Louis to Cow Island ought to be ten or eleven cents, and from said island to Council Bluffs it ought to be nine cents.

That the steam boat Expedition arrived at St. Louis on the 12th of May, and that the steam boat Johnson arrived at the same place on the 17th of May, and were detained near Belle Fontaine until the 5th of July, and that those boats, with their crews, were prepared to have proceeded on from the 17th of May, and, in consequence of their detention, they were prevented from reaching the Council Bluffs, and probably returning, and as to the expense of navigating the Missouri, repairs, hands, tackle, &c. it ought to be, and does require, about double that on the Mississippi.

He thinks it would take at least twenty thousand dollars to fit out the three boats, independent of the hire of hands, which amounts to about $14,280 for each boat a year; besides this, there remains the finding the hands in provisions.

A trip of the General Johnson up and down the Mississippi would clear about $10,000 independent of the expenses; the Expedition about $22,000, and the Thomas Jefferson about $20,000, at the time and prices before stated on the Mississippi.

He states that all three are good and substantial boats, not exceeded by any on the river, and that they are compelled to replace nearly all their tackle every year, and that the muddiness of the Missouri is very destructive to the boats and their machinery, and

thinks that a boat will not last more than half as long as on any other waters; that the difficulty of getting wood on the Missouri is much greater after you leave the settlement than on the Mississippi, and that the boilers have to be cleaned every three or four days; and on the Missouri they are compelled to stop every night, which is not the case on the Mississippi and Ohio rivers.

Given under my hand at Frankfort, on the 28th day of January, 1820.

WM. D. HUBBELL.

Captain Samuel M'Guire states that he has examined the statements of Mr. Hubbell, as regards the Mississippi, the freights, &c. on that river, and feels no hesitation in confirming what he has stated in that respect; and as to the expenses, repairs, the hands it would require to perform a trip on the Mississippi, he states that he is under the same impression and belief, and that he has had a fair opportunity of judging of the facts.

In witness whereof he has hereunto set his hand, this 28th day of January, 1820.

SAMUEL M'GUIRE.

GEORGETOWN, *February* 16, 1820.

I do hereby certify that I have navigated the Mississippi river from the mouth of the Ohio to the mouth of the Missouri, and from thence to the Council Bluffs, the last year, a part of the way in steam boats, and a part of the way in keel boats, and have no hesitation in saying that the Missouri river is four times as bad to navigate as the Mississippi, owing to the strength of the water, the many sand bars, changing of the channel, falling in of the banks; the many logs, snags, and roots, and many of them concealed under water, and the water being so muddy that they cannot be seen, which subjects boats very often to run on them, and be greatly delayed, and sometimes destroyed. From these difficulties and obstructions in the river, it is my opinion that it is worth at least eighteen or twenty cents per pound to freight from the mouth of the Missouri to Council Bluffs.

JOHN D. CUMMINS.

SCOTT COUNTY, 18*th February*, 1820.

Sworn to before me, a justice of the peace for said county.

DAVID THOMPSON, *J. P.*

SCOTT COUNTY, *February* 18, 1820.

I do hereby certify that I was engaged in the transportation of provisions from Kentucky to the mouth of the Missouri the last year, and that I was engaged at that place in aiding in fitting out the boats, putting up provisions, &c.; and have no hesitation in saying, that you have to be at least double the expense in fitting out a boat to ascend the Missouri, that would do to ascend the Mississippi. You are compelled to have nearly double the number of hands that would do to ascend the Mississippi; and you cannot put in a boat that ascends the Missouri near as much loading as the same boat would take with safety up the Mississippi: and believe the price of freight from New Orleans in 1818 and 1819, was from 4½ to 6 cents; and believe that it is worth to transport provisions from the mouth of Missouri to Council Bluffs at least 18 or 20 cents per lb.

Given under my hand the day first above written.

SMITH CALVERT.

Scott county, Kentucky, February 18, 1820.

Sworn to before me, a Justice of the Peace for said county,

DAVID THOMPSON, *J. P.*

SCOTT COUNTY, *February* 17, 1820.

I do certify that I was engaged in transporting provisions from the mouth of the Missouri to Council Bluffs the last season; and that I consider the Missouri to be one of the worst rivers to navigate I have ever seen; the difficulties of its navigation are great indeed, on account of the many sand bars, and the perpetual changing of the channel: where you find the channel to day you may find a dry beach or bar the next time you pass. You have a stronger and more powerful current to contend with than any other river I have ever attempted to navigate: there are in the channel prodigious quantities of trees, or sawyers, and logs under the water, which are very serious obstructions, and often occasion the destruction and loss of boats. The stream is so muddy that it is often impossible to see or discover the logs and timber under the water; and boats very often run upon them, frequently breaking holes in the boat, and often producing total destruction.

I have several times navigated the Mississippi from the mouth of the Ohio to the mouth of the Missouri, and I am of opinion that the Missouri is at least four or five times as difficult to navigate as the Mississippi. You have to employ double the number of hands, and be at a much greater expense in tackle, provisions, &c.; taking these things into view, I have no hesitation in saying it is my opinion, that the price of freight ought reasonably to be not less than from eighteen

to twenty cents per pound, from the mouth of Missouri to Council Bluffs.

ICHABOD RANDALS.

Kentucky, Scott county, sct:

Ichabod Randals this day personally appeared before me, a Justice of the Peace for said county, and made oath that the within statement is true, to the best of his knowledge and belief. Witness my hand this 17th of February, 1820.

DAVID THOMPSON, *J. P.*

SCOTT COUNTY, *February* 18, 1820.

DEAR SIR: On the subject of the price of freight from the mouth of the Misssouri to Council Bluffs, I state as followeth:

I consider that stream one of the most difficult streams I have ever seen to navigate; it is one of the strongest currents I have ever attempted to navigate, owing to the many sand bars, logs, snags, roots, the changing of the channel, &c. You may find a dry beach to day where the main channel was one week before; and from the frequent changing of the sand bars, falling in of the banks, the water becomes so muddy that it is impossible to see the many logs that lie concealed under water; and it is not uncommon for us to run fast on those logs, and with great difficulty we get off, and at great risk of our boats; and it is not uncommon for us to hear of boats being lost or much damaged. Your boats cannot be loaded near as heavy to ascend the Missouri as they could be to ascend the Mississippi. You must have nearly double the number of hands; your boats much better rigged; and you must have the best of hands, and they at much higher price than you could get them on the Mississippi. You have to lay in a greater stock of provisions and whiskey: and, from the strength of current, many sand bars, logs, roots, &c. you cannot make more than from eight to twelve miles per day; indeed last fall in ascending that river, I was not able to make more than six miles some days, and the hands doing their best; and from the great expense in fitting out, together with the many difficulties stated above, have no hesitation in saying that freight from the mouth of Missouri to Council Bluffs should be at least from 18 to 20 cents.

Given under my hand the day first above written.

WILLIS W. SNELL.

Scott county, sct:

The above statement was sworn to before me by Willis W. Snell. Given under my hand this 18th of February, 1820.

DAVID THOMPSON, *J. P.*

JANUARY 29, 1820.

SIR: In answer to your interrogations respecting the Missouri and Mississippi rivers, and relative prices of transportation on each, taking into consideration the difficulty and hazard, I certify as follows:

That, in the fall and winter of 1818 and 1819, the transportation on the Mississippi, from New Orleans to Louisville, was from 4½ to 6 cents, and down again one cent: notwithstanding the ordinary stoppages a trip could be completed in sixty days. I have had full opportunity of judging the relative risk, hazard, &c. &c. of both these streams, and am well convinced that it is five times as great on the Missouri as on the Mississippi.

In confirmation of this statement, it required almost double the number of hands to manage the boats in particular keels; that there are a vast number of sand bars, and a very bold rapid current to encounter, so that it requires about the same time with only half the loading, to run from St. Louis to Cow Island, as it does to perform a trip up and down the Mississippi, as above from Cow Island the hazard and difficulty increase in rapid proportion. You have to lay by in the night on the Missouri, which is not the case on the Mississippi: the wood is much more difficult to be obtained after you leave the settlement, by which great delay is occasioned. You have to clear out the boiler every two or three days owing to the muddiness of the stream; and it takes within about five days to perform the trip from Cow Island to the Council Bluffs. It is the general opinion that boats will not last more than half as long on the Missouri as on other streams; of the truth of which I think there cannot remain a doubt. I have examined the three steam boats on the Missouri, and have no hesitation in saying they are as good and substantial as any I have ever seen.

The Johnson's freight is about 90 tons; the Expedition's 225, which she conveyed to St. Louis; the Jefferson's 300 tons, which she took to the same place. When I consider these circumstances, I must say, that the price of freight on the Missouri ought to be, at least, 10 or 11 cents to Cow Island, and very little less from thence to the Council Bluffs.

The boats Expedition and Johnson were prepared to have started with their loading from St. Louis up the Missouri by the 17th of May last, and if they had progressed from that time, I am well convinced those boats would have reached the Bluffs and returned in the last season.

It is my opinion that, during a trip up and down the Mississippi, the steam boats would have made the following sums clear of expense, viz:

The Jefferson $ 20,000; the Expedition $ 22,000; and the Johnson $ 10,000. The calculation I have made. Relative to tackle and outfit of the boats, I make the hands cost per year $ 15,000 for each boat,

and 7 or $ 8,000 for tackle, &c. each. This is absolutely necessary, besides finding the hands.

Your obedient servant,

A. JOHNSON.

Col. JAMES JOHNSON,
Great Crossings.

I have this day examined the above statement of A. Johnson, and, from a knowledge of the principal facts set forth, and from the general opinion which prevailed in the Missouri country while I was on board of the Johnson, I am thoroughly convinced his statements are correct, and such as have impressed themselves on my mind.

BERRY JOHNSON.

January 29, 1820.

The above named Andrew Johnson and Berry Johnson this day appeared before me, a Justice of the Peace for said county, and made oath that the facts and statements by them above made are true to the best of their knowledge and belief. Witness my hand.

DAVID THOMPSON, *J. P.*

WASHINGTON, *February*, 20, 1820.

SIR: I have received your letter of the 6th instant, asking me to give a statement in writing on the subject of a contract, dated December 2d, 1818, between Quartermaster General Jesup and your brother, colonel James Johnson, of Kentucky; to give my opinion what would be a fair equivalent per pound, under the conditions and terms of said contract, to Council Bluffs on the Missouri: to speak of James Johnson, his brother, and major Sebree, who aided him in the execution of said contract.

You ask how much the price of freight on the western waters has fallen since the date of said contract, and if so, to say in what proportion; do I consider the usual mode of letting out contracts to the lowest bidder a just criterion for a fair and reasonable compensation; what length of time I have resided on the western waters; and what have been my opportunities of being acquainted with the navigation of these waters, &c.; and to give any other answers and views which I may deem important to your inquiries.

In order to form the opinion requested, I have examined, with considerable attention, the said contract.

I am well acquainted with colonel James Johnson, his brothers, and major Sebree, who aided colonel Johnson in executing the said contract. They are all men of great integrity and perseverance in every thing they undertake.

I had, during the last spring, opportunities of witnessing the exertions and arrangements of colonel Johnson and major Sebree, in preparing to execute the said contract, as I had business with them, and saw them frequently, and had several conversations with them on the subject.

I have always thought, and frequently declared, colonel James Johnson one of the most industrious men I was ever acquainted with, and as to arrangement and devotion to the service of his country, I have considered him second to no man in our state.

The price of freight has fallen very much since the date of the said contract, on the western waters: I think fully one-half, as far as my knowledge extends.

I am clearly of opinion the ordinary mode of letting out contracts, for transportation and supplies, to the lowest bidder, is no just criterion, because many persons, inexperienced, and often in embarrassed circumstances, bid for such contracts in order to obtain an advance, and found their prospect for profit more on hope, and with a view to relieve themselves from the pressure of the moment, than any conviction on their minds that the bid they have made will yield a fair compensation.

Under my view of the contract it appears to me colonel Johnson was bound to provide steam boats, and, in thirty days, keel boats, if it should be found that the steam boats would not answer the purpose; and it appears there were some well grounded fears that steam boats would not answer the purpose, and that keel boats would have to be resorted to, which I understand is the fact.

I understand the distance from the mouth of Missouri to Council Bluffs is upwards of seven hundred and fifty miles.

In the spring of 1792, I went to Kentucky and made arrangements for making it my permanent residence. I removed the next spring and settled on the Ohio river, adjoining the town of Newport, opposite to Cincinnati, the largest town in the western country, where I have resided ever since.

From my situation, and having been engaged in various kinds of business, I think I am tolerably well acquainted with the expense and risk of navigating the western waters; and I would not take colonel Johnson's contract off his hands; that is, to pay all his disbursements, even with an assurance that he would be allowed twenty cents per pound for the transportation he performed to Council Bluffs.

The expense of building, equipping, navigating, and keeping in order, steam boats, is enormous, and now their comparative value must be small from the reduced price of freight; and indeed I am induced to believe that, from their exposed situation in the Missouri, one or more of them will be lost by the ice, and other casualties, or so injured as to be of little use to him.

It will be a matter of deep regret with colonel Johnson's numerous friends in Kentucky, if, in his zeal to make an experiment to na-

vigate the Missouri with steam boats in unison with the views of the government, he should have to sacrifice his private fortune.

I have the honor to be,
Very respectfully, sir,
Your obedient servant,
JAMES TAYLOR.

Hon. R. M. JOHNSON.

District of Columbia, Washington county, to wit:

Before me, R. S. Briscoe, one of the Justices of the Peace for the district and county aforesaid, personally appeared James Taylor, whose signature is affixed to the foregoing letter and statement, and made oath that the facts stated herein, as far as they are related of his own knowledge are true: and as far as they are related from information, or opinions are given, he believes them to be true.

Sworn to this eighth day of March, 1820, before

R. S. BRISCOE, *J. P.*

CITY OF WASHINGTON, 21*st February*, 1820.

SIR: The War Department and James Johnson having submitted to reference the compensation which he claims, under a contract with the government for transportation of provisions up the Missouri, I have considered it my duty to call upon several members of Congress to express their opinion of the capacity, integrity, and enterprise, of James Johnson, and the character which he maintains in the state of Kentucky generally. Your answer to the substance of the above will oblige your obedient servant,

R. M. JOHNSON.

Hon. R. C. ANDERSON.

N. B. Please return this with your answer.

HOUSE OF REPRESENTATIVES, *February* 22, 1820.

DEAR SIR: I received your note this morning, which is herewith returned, according to your request. I can very safely state that the character of Colonel James Johnson, in Kentucky, for enterprise, integrity, and extraordinary vigilance, industry, and activity, is very high. My personal acquaintance with him is not very inti-

mate, but I can speak with certainty as to his reputation; and, so far as my acquaintance does go, it is entirely in confirmation of the public opinion.

I am your obedient servant,

R. C. ANDERSON, Jr.

Hon. R. M. Johnson.

City of Washington,
Senate Chamber, 21*st February*, 1820.

Sir: Inasmuch as James Johnson, of Scott county, Kentucky, has a claim against the government, which has been referred to referees, under a written contract for transportation up the Missouri, &c. I consider it my duty to request the members of Congress who know him best to give me a written opinion of his standing and character, particularly as to his judgment, his being a man of business, entitled to confidence, &c. Please return this with your opinions.

With great respect, your obedient servant,

R. M. JOHNSON.

Col. Tunstall Quarles.

Washington, *February* 21, 1820.

Sir: I received your letter of to-day, calling on me for information concerning Colonel James Johnson, of Kentucky, as to his standing as a man of integrity and industry. I believe he is exceeded by none; and, so far as I know, is a man of judgment in the prosecution of his engagements. My acquaintance with Colonel James Johnson is more from reputation than an intimate knowledge of him, living at a considerable distance from him, and having had only a transitory knowledge of him myself for some years.

I am, respectfully,

T. QUARLES.

Col. Richard M. Johnson.

City of Washington, 21*st February*, 1820.

Sir: The War Department and James Johnson having submitted to reference the rate of allowance, &c. which should be allowed him under his written contract to transport provisions, &c. up the Mis-

souri, I consider it my duty to request several of the members of Congress to state what is the standing and character of James Johnson for capacity, enterprise, industry, &c. in Kentucky. Your answer to the above request will oblige

Your obedient servant,

R. M. JOHNSON.

Hon. DAVID TRIMBLE.

N. B. Please to return this with your answer.

CONGRESS HALL, *February* 21*st*, 1820.

DEAR SIR: In reply to yours of the 21st instant, I have the honor of saying that I presume the enterprise, industry, &c. of Col. James Johnson cannot be called in question. So far as I know, there is but one opinion on that subject. It is not in my recollection that I have at any time transacted business with him, and therefore am not able to speak further on the inquiry made.

Very respectfully, your friend,

DAVID TRIMBLE.

Col. JOHNSON.

CITY OF WASHINGTON, 21*st February*, 1820.

SIR: As the War Department and James Johnson have submitted to referees the rate of compensation to which he is justly entitled under his contract for transportation of provisions, &c. up the Missouri, I deem it my duty to request of several of the members of Congress who know him best, to say what is his standing and character, as a man of judgment, a man of business, a man of arrangement, and such other views, facts, or opinions, as may present a just estimate of his character. Please return this with your answer.

With great respect, your obedient servant.

R. M. JOHNSON.

Col. WILLIAM BROWN, *of the House.*

WASHINGTON CITY, *February* 21, 1820.

DEAR SIR: In answer to yours of this date, requesting that I should speak of the standing and character of your brother, I state

that I have had the pleasure of an intimate acquaintance with Colonel James Johnson, of Great Crossing, Kentucky, for many years, and can say, without hesitation, that he is an influential, able, efficient, practical man; that he is enterprising, persevering, and is possessed of a character for integrity, honor, and patriotism, surpassed by no man.

I am, respectfully, yours, &c.

WM. BROWN.

Col. R. M. Johnson.

United States of America, state of Pennsylvania, city of Pittsburgh, sct:

Be it known by these presents, that, on this sixth day of March, in the year of our Lord one thousand eight hundred and twenty, before me, Mathew B. Lowrie, notary public, dwelling in the city of Pittsburgh, duly appointed, commissioned, sworn, and exercising the office of notary public, personally appeared Mr. Ithamar Whiting, an inhabitant and citizen of Pittsburgh, well known to me for several years last past, and who appears to me about thirty years of age, who being sworn, on the Holy Evangelists of Almighty God, doth depose and say, that he has carefully perused and considered the annexed copy of a letter from William Stackpole, and deponent's brother, Ruggles Whiting, dated 20th November, 1819, addressed to the honorable John C. Calhoun, Esq. Secretary of War; and deponent has most perfect confidence in the correctness, truth, and candor of the statements therein made; but, as several facts, opinions, and other matters, are set forth therein, of which the deponent hath not a personal knowledge, he desires merely to state what he doth certainly know relative to the steam boats Expedition and Johnson, mentioned in said letter. The deponent doth, therefore, depose and say, that the steam boat Expedition was built under the superintendence of, and according to plan of construction directed by, this deponent; the materials were of the best description, carefully selected where there was abundance to accept or reject; the workmen were good, careful, and of excellent skill, with considerable experience. This boat was constructed with her propelling wheels under her stern, so as to be secure against ice or drift when navigating the rivers, which deponent believes to be the best mode of construction. She was built with an intent that our own company, her owners, should navigate and employ her in the trade to and from New Orleans. The steam engine of this boat was made in the shop, and under the direction of this deponent; and was of the best workmanship, and worked as well and as regularly as any one deponent ever made or examined, and in power was fully equal to the size and freight of the boat. When said boat was finished deponent took charge of her, and navigated her to the falls of Ohio, where deponent's brother, Ruggles Whiting,

then was, and where deponent also met colonel James Johnson, of Kentucky, who, after examining this boat himself, and getting others, among whom was a very skilful engineer, to examine her also, proposed to purchase, and did purchase, said boat, for the purpose of being used on the Missouri river for transportation of stores and provisions for the troops engaged in the enterprise to Yellow Stone river. Deponent did then, and doth still, most confidently believe that said boat is as well adapted to the service for which she was purchased as any other boat that could be had on the river, as she was more easily managed, being shorter than other boats that had the same tonnage and propelling force. Before the deponent left Pittsburgh with the boat Expedition, he received orders from colonel James Johnson to make an additional boiler and two new flues for the steam boat Johnson, desiring that they should be of the strongest and best iron, so as to ensure safety, and augment the supply of high steam beyond the original calculation for that boat: this order was faithfully executed by deponent, who saw this new additional boiler, and the said new flues, placed in the steam boat Johnson, and recollects perfectly that one of deponent's principal engineers and some of his workmen were employed in fixing these improvements in said boat: deponent saw said boat under way after the improvements were completed, and believed her to be among the speediest boats on the river, and had full confidence in her performance. Deponent further saith, that during more than twenty days while the repairs aforesaid, and the sale of the steam boat Expedition, were effecting, he was daily in company with colonel James Johnson, and never did see any man more anxiously intent on having every thing done for securing the success and security of the business in which he was engaged; nor was it possible to exceed the earnestness with which he urged all the workmen, and others under his control, to omit nothing useful, and to make the greatest efforts in their power to despatch the business in which they were employed. Deponent verily believes that the power of the steam engine in the Johnson was increased more than one third by the additional boiler and the strong new flues, so as aforesaid made and added to her equipment, and the security of the whole working machinery was augmented in a still greater proportion. Deponent saw the Johnson and Expedition begin their voyage from Louisville in April or in the beginning of May last, for St. Louis, and believed them to be as competent as any boats he had seen to execute the enterprise on which they were engaged.

ITHAMAR WHITING.

State of Pennsylvania, city of Pittsburgh, sct:

Before me, Mathew B. Lowrie, a notary public, by authority of the state of Pennsylvania, duly commissioned and sworn, personally came Mr. Ithamar Whiting, to me well known as a man of veracity, who, being duly sworn according to law, doth depose and say, that

the contents of the foregoing deposition, which I have carefully read over to him, is just and true. In testimony whereof, I have hereto attached the letter therein referred to, and have hereunto subscribed my name and affixed my notarial form and seal of office, at Pittsburg, the seventh day of March, A. D. 1820, the same being sworn to, and subscribed before me in the same day.

MATHEW B. LOWRIE,
Notary Public.

LOUISVILLE, *November* 20, 1819.

SIR: From the circumstance of our having for several years been extensively engaged in constructing steam boats and steam engines, we have been requested by Col. James Johnson freely and fully to communicate to your department our opinions touching the fitness of the steam boats Expedition and Johnson for transporting provisions to the river Yellow Stone the coming spring, and generally to state our ideas in relation to the course he has pursued the past season, in the execution of a contract which he had made with the government for supplying the troops in that quarter. We are induced most cheerfully to comply with his request, by the high sense we entertain of his honor, his integrity, enterprise, and capacity, and because, while we are aware that he has enemies from interest, we are confirmed in our estimation of his character by the concurrent opinions of the most respectable part of the community. With this apology for addressing you, we proceed to state, sir, that we have a full knowledge of the steam boats in question, and of almost every other boat on the rivers Mississippi, Ohio, and Missouri; indeed, one of the undersigned, (Mr. R. Whiting) for the last four years, has uninterruptedly been engaged in navigating the waters of the Mississippi and Ohio, with a view to perfect himself in the knowledge of steam boats, their construction, and management. We confidently declare that the two boats above mentioned have been constructed according to the most approved models; that they are furnished with superior engines, and are considered first rate boats, and first rate runners. The Expedition, in the presence, and to the surprise, of perhaps a thousand spectators, towed up and over the falls of the Ohio another steam boat (the Independence) to receive her machinery. The Johnson, after having made one of the quickest trips from Louisville to New Orleans and back that had at that time been made, had the power of her engine increased a third, for the purpose of being still more capable of contending with the currents of the Missouri. This alteration was made at the factory of the undersigned, at Pittsburgh. In short, we consider these two boats to be well calculated to proceed to the post contemplated to be established near the river Yellow Stone, and have no doubt but they could have reached that point the present year, if they could have started sufficiently early to have availed of the first rise of the water in the Missouri river. We consider it in-

deed highly important that boats destined for this service should proceed as far up the Missouri as possible, previous to, and with a view to avail of the first spring rise of that river. It having been stated that accidents have occurred to the machinery of some of Col. Johnson's boats, we would remark that engines placed in new boats are peculiarly liable to accident on the first trip, as the timbers on which they are sustained cannot have been so well seasoned as to be proof against the usual effect of the intense heat to which they are exposed. We cannot but avail of the opportunity which is now given us, to state that we have had very large contracts with Col. Johnson, and have ever found him not only willing, but anxious and indefatigable, in the performance of his engagements, and we should not hesitate, if requested, to place at his disposal one steam boat, the James Ross, or any other of our boats, to enable him to execute any contract which he may make with the government. We mention the James Ross as a boat of extraordinary celebrity, as one of too much value to risk on a hazardous enterprise, and because the President had an opportunity personally to examine her when at Louisville, and our observation on this occasion embraces several of the best boats on the river. We will only add that it was our intention to have made proposals for the contract to St. Louis for the ensuing year, but relinquished the idea on being informed by Col. Richard M. Johnson that his brother would apply for it. We were particularly moved to this by the consideration that his previous services and exertions justly entitled him to a preference.

We have the honor, sir, to be, with great respect,

Your obedient servants,

WILLIAM STACKPOLE,
RUGGLES WHITING.

Hon. JOHN C. CALHOUN,
Secretary of War, &c.

I certify that I have examined over Captain A. Johnson's certificate, and can state it as my opinion that it is substantially correct. I was on board the Johnson when she arrived at Belle Fontaine, and afterwards assisted in the inspection of the provisions. I then went on with a cargo to Fort Crawford, and Col. Atkinson had not arrived at Belle Fontaine when I left it. The Johnson and Expedition were in complete order to progress when they arrived at Belle Fontaine. They had much too heavy a cargo in each to ascend the Missouri; of course they could have left a considerable quantity of provisions, and still had a load to go on up the Missouri. I know that Colonel Johnson was anxious to go on, but I understood that he could not get any orders from Colonel Chambers to move on, and Col. At-

kinson had not arrived to give him orders. I recollect to have been in Mr. Holderman's house, and hearing him tell a gentleman that he would not freight up the Missouri unless he received pay for the full tonnage of his boats, or for what they actually could carry; that he was determined not to carry full loads up the Missouri, but would have pay as if full loads were carried.

Given under my hand and seal, this 5th day of February, 1820.

LEVI CRAIG.

SCOTT COUNTY, ss.

The above statements were sworn to before me by Levi Craig.

Given under my hand this 18th February, 1820.

DAVID THOMSON, *J. P.*

PORT WILLIAM, *2d November*, 1819.

I certify that I aided Colonel James Johnson in loading his steam boats last spring for the Yellow Stone and St. Peter's expedition, at Louisville. I accompanied the boats to Belle Fontaine; I there took charge of a keel boat freighted with provisions to Prairie du Chien. I was intimately acquainted with the quality of the provisions. That I was intimately acquainted with the condition of the steam boat, her crew, &c. That I ought to be a tolerable good judge, having been much experienced in water navigation. I further certify that no person could, in my opinion, make greater exertions, and use greater industry, than Colonel James Johnson, to accomplish his general business; that the steam boat Expedition is a first rate steam boat, and runs with very great power; that she has a complete plane on her upper deck considerably over 100 feet, and well calculated to transport troops; that, in the course of one day the awning could be spread over said deck to keep off rain, &c.; that, in fact, the soldiers had their tents stretched, from Louisville, on said decks, so that they would turn off rain and heat of the sun: that there was an extra number of planks on board, which might in a few hours be placed against the upper hand-rails for defence, when necessary: that, in the cabin and lower part of the vessel, the mattresses and plank of the boat side would have formed a defence, in my opinion, against bullets, &c. which could be put in order for such defence in a few minutes: that she was uncommonly well supplied with cables, anchors, cordels, warps, &c. She had an uncommon good crew, and the discipline of the crew equal to any I have ever seen. That I aided in weighing and repacking a quantity of his meat. This first was in the latter end of May, and the last time I assisted was in the latter end of July, and the last inspected was as sweet and as sound as the first. The

inspector caused me to weigh a large quantity, and take the whole together. Colonel Johnson was considerably gainer in the weight. The barrels of meat generally overrun in weight; a number very considerably. I well recollect that, in some days' inspection, that from 1,000 to 1,200 weight was gained in overweight.

Given under my hand.

LEVI CRAIG.

SCOTT COUNTY, ss.

Personally appeared before me Levi Craig, one of the justices of the peace for said county, and made oath that the foregoing statement was just and true.

Given under my hand this 22d November, 1819.

DAVID THOMPSON, *J. P.*

ILLINOIS STATE, MOUTH OF MISSOURI,
September 28, 1819.

I do hereby certify that I have resided at this place, and in this county, for many years, and was here with my family when colonel Johnson landed his steam boat last May. I live within two hundred yards of colonel Johnson's warehouse. I was eye-witness to his conduct while here as a public agent, as also the quality of his provisions, as I was very often present when majors Hemstead and Wilson were inspecting them. I have never witnessed more industry and exertion than was used by colonel Johnson; nothing diverted his attention from his business. I often thought he acted imprudent towards the latter part of his public duties, when he had an attack of the fevers, when he was so weak he could scarce go about, he would, in person, attend to loading boats, paying off hands, &c. &c. I am also happy to state that I have never seen better provisions, and but seldom as good; some of the flour was cooked and eat at my table, and was of excellent quality; the pork and beef was uncommonly fine. I have heard major Wilson and major Hemstead express the same opinion; the whiskey was uniformly high quality. These statements I make with pleasure, because it is doing colonel Johnson no more than justice, and I do it with a clear conscience. I also state that it was the general talk among the hands that the meat overrun in weight. I believe it did overrun, from there being no contradiction to it while under inspection, as I was present frequently myself. I was very frequently on board the steam boat Expedition; the sailors (five men) appeared to be a fine hearty set of men, and under uncommonly good discipline. She also appeared to have a large supply of anchors and cables. I also saw her start from this place and enter the mouth

of Missouri; I thought she run astonishingly well. Indeed the whole of his steam boats, the Johnson and Jefferson, appeared to me to run extraordinarily well.

JOHN GILLHAM.

MOUTH OF MISSOURI, *October* 20, 1819.

I certify that, on the 29th of August last, colonel James Johnson sent a keel boat to St. Louis with orders for her to be loaded and started immediately; he also in his orders stated that captain James M'Gunnegle had given him notice that he had a load ready for him to transport. I immediately had a crew of hands prepared, and, on the morning of the 31st, informed captain McGunnegle that I was ready to receive the loading in colonel Johnson's boat; he viewed the boat and stated to me that it was too large to ascend the Mississippi, but that he would commence loading her the next morning for the Missouri; but the boat was not loaded for ten days after, which was for the Missouri, where he first stated she must go, owing to her tonnage; and stated that he had engaged a boat of Mr. Belding to transport the Mississippi freight, and shewed me the boat. I informed him that she was larger than colonel Johnson's boat; he said she was to be accompanied by a small boat. Captain McGunnegle then told him (Belding) that he should have the freight, and he received it. On the 3d of October I was at captain McGunnegle's quarters, where I found Mr. Belding making some details concerning his trip, and said it was impossible to get over the rapids, and he had returned to the mouth of Missouri. Captain McGunnegle on that day told me that, as Belding had returned with his boats and loading to the mouth of Missouri, I would have to furnish two boats immediately to take it, if Belding would not return with it; and, it being late in the season, that hands were very hard to be engaged, it employed me and two other agents nine days to procure a crew sufficient to man the boats, and them on high wages. The loading by neglect was a good deal damaged before we received it. As witness my hand the day and date above written.

WILLIS W. SNELL,
Agent for J. Johnson.

I do certify that I have been acting as agent for Colonel James Johnson, in St. Louis and the adjacent country, for upwards of eighteen months; that, previous to the arrival of Colonel James Johnson with his steam boats, I had a conversation with Mr. Peter Holderman, of St. Louis, on the subject of transportation of provisions, &c. for

government, under contract of Colonel James Johnson, and that Holderman expressed a desire to be connected in part of the transportation, which should be confined to keel boats, and having the greatest confidence in the capacity and integrity of said Holderman, and knowing that the steam boats could not take the whole of the transportation, I did give assurance to said Holderman, that, upon the arrival of Colonel Johnson, I would give him the preference: that, sometime in the month of July, after the arrival of the steam boats and all the troops, and after ascertaining that we should have to resort to keel boat navigation, I, according to previous intimations, applied to said Holderman for the purpose of making arrangements for him to furnish keel boats for navigation, who declined the same, and at the same time stating that he had it from undoubted authority that Colonel James Johnson had drawn vast sums from the government, more than he would account for, $180,000. And I do further certify that, at a different conversation with said Holderman, after the time above alluded to, I was informed by him that Capt. M'Gunnegle had employed him for the purpose of transporting articles, &c. for the government; and it is a notorious fact that the said Holderman was employed by said M'Gunnegle.. I have no hesitation in saying that I firmly believe that I could have employed the said Holderman, or any other person, or persons, who were in the market for transportation, but for reports that were circulated as to these advances to Col. Johnson, and that he would be deficient with government. I have no doubt of the fact, that, if the officers of government had made no contracts, but had given notice to Colonel Johnson to furnish keels, or any means of transportation, and those reports had not been in circulation, that we could have furnished as much, and more than has been furnished, both by Colonel Johnson and the government officers. But, notwithstanding those injurious reports, we never did fail to furnish any transportation that was required, and we were able to furnish more than was required, for our boats were frequently idle, while government agents were employing others, without any requisition on us. I do further certify that, when I saw Colonel Johnson, the first time after my conversation with said Holderman, I informed him of the reports as to the advances from government, who then informed me that he had received a letter from General Jesup, which was delivered by said M'Gunnegle, containing the statement, unsealed, and that he was apprehensive that the contents of said letter had been related to said Holderman and others, as he did not know how it could be otherwise stated, as he did not know himself what advances had been made; as the most of his expenses, having been incurred in Kentucky, and his agent left to draw money to pay them. As an instance of the employment of other keels by government agents, while Col. Johnson had idle boats, I recollect, at the mouth of the Missouri, Capt. M'Gunnegle loaded the boat of a Mr. Minns, from Pittsburgh, for Prairie du Chien, while Colonel Johnson had an empty boat in the same harbor, doing nothing, the captain ready and waiting for loading. Again; when the steam boat left Belle Fon-

taine, a keel boat of flour and other articles was left; that Col. Johnson ordered me to make immediate preparation to transport the same, and to go to Belle Fontaine and see Captain M'Gunnegle, and inform him that a keel and hands would be there the next day to take said property, and that the same was not to be put into any other keel boat. I proceeded to said fort and made the communication to said M'Gunnegle, who informed me that he had given the transportation to Peter Holderman, and that he had pledged himself to Mr. Holderman that he should have it. I do further certify that Holderman had three keel boats at that place, at this time, and do not believe that the three keel boats carried in them half loading; and I do verily believe that said keel boats employed by said M'Gunnegle, and belonging to said Holderman, were hired by their tonnage, and not by the actual loading. This I heard Colonel Green, of Chariton, declare, that Peter Holderman informed him that he was paid by the tonnage of his vessels, and not actual amount of burthen taken.

A. JOHNSON.

Great Crossing, November 19, 1819.

SCOTT COUNTY, ss.

This day Andrew Johnson came before me, a justice of peace in and for the county aforesaid, and made oath to the within certificate. That I have known said Johnson from his infancy; he is no relation of Colonel James Johnson: that no young man in this country stands higher for honor and veracity; that he served in the late war, in the militia and in the regular army; that I was present with him on a tour of six months, in a volunteer corps, and no man acquitted himself with more honor during the campaign, and particularly the battle of Thames.

Given under my hand, this 20th November, 1819.

DAVID THOMSON.

This day Andrew Johnson, Berrywick Johnson, and Philip Howser, came before me, a justice of the peace for Scott county, and made oath that they were present at the mouth of Missouri when pork and beef were inspected for government, as furnished by Colonel James Johnson, and that the beef and pork were good, and, taken in the aggregate, the weight overrun two hundred pounds to the barrel considerably; that they were not only present, but aided in the weighing; and that they were well acquainted with the crew of the steam boat Expedition, and they were a faithful and experienced crew, and that the boat was uncommonly well supplied with cables and anchors.

I certify that the statement of said affirmants is entitled to respect.

Given under my hand this 20th November, 1819.

DAVID THOMSON.

St. Louis, *August* 14, 1819.

Sir: Your communication of this date, relative to sending keel boats to receive the troops and stores on board the Jefferson has this moment been received. Unless it will be in your power to start those boats on Monday next, from my instructions from Colonel Atkinson, I will then be obliged to employ the necessary transportation on account of the United States.

I am, respectfully, sir, your obedient servant,

J. M'GUNNEGLE,

Assist. Dep. Q. M. G.

Col. James Johnson,

Near the mouth of Wood river, Illinois.

This letter was written on Saturday, and on Monday I was to fit out a fleet of keel boats. One day to do it in, and that Sunday.

JAMES JOHNSON.

Steam Boat Jefferson,

30 *miles below Franklin*, 31*st August*, 1819.

Dear Sir: I believe, in my last to you, I informed you of the failure of the Jefferson. She is now unloaded, and the loading has been put on keels; one furnished by Colonel James Johnson, and the balance by the quartermaster's department. When the keels arrived to take the loading from the Jefferson, the commanding officer said he could not permit any loading to be put on Colonel Johnson's keel. He is very friendly, and is a good officer, and disposed to do all he can for the expedition, but says that he had instructions to put it on board the quartermaster's boats. I told him that Colonel Johnson had the right of transporting the property, and, except prevented by force, I should load Colonel Johnson's boat; which was done, and is now under way. Captain Bliss, previous to any of the boats being loaded, issued the following order:

"DETACHMENT ORDER.

"Camp Belle Fontaine, *August* 29*th*, 1820.

"In consequence of the stoppage and final failure of the steam boat Thomas Jefferson, and the master and agent of the same having, on the 10th of July, finally declined, to the commanding officer, to navigate the same to Council Bluffs, the place of its destination designated by the department order of the 3d of July last, Lieutenant Brown, quartermaster 6th infantry, will immediately demand and receive from the master and agent of the said boat the provisions, stores,

and munitions of war, and all property on board of it belonging to the United States, or the troops thereof, preparatory to its being loaded into keel boats provided for that purpose by the quartermaster general's department.

"JOHN BLISS,

"*Capt. 6th infantry, commanding detachment.*"

Which was answered as follows:

August 29th, 1819.

The agent and master of the steam boat Thomas Jefferson is ready to deliver over to Lieut. Brown, quartermaster 6th infantry, all the provisions, stores, and munitions of war, and all property on board belonging to the United States or the troops thereof, reserving to themselves 40 tons, which will be put on board of a keel boat, now with said steam boat, provided by Col. Johnson, which will be delivered at Council Bluffs as soon as practicable.

U. SEBREE, *Agent.*
F. YESER, *1st Mate.*

In explanation of the foregoing, we absolutely decline delivering to Lieutenant Brown, quartermaster 6th infantry, forty tons of the cargo now on board of the Jefferson, the property of the United States, as above designated, but do directly reserve to ourselves, and will keep in our possession, the said forty tons until delivered at Council Bluffs, or at some other place designated by the commanding officer of the detachment.

Given on board the steam boat Jefferson, this 29th day of August, 1819.

U. SEBREE, *Agent.*
F. YESER, *1st Mate.*

This was done in perfect harmony, and no other difficulty arose only difference of opinion.

I retained 35 tons of the loading, it being all the keel would carry; the balance was delivered to the quartermaster, and as it now stands. The last accounts I had from the Expedition and Johnson was ten or twelve days ago. The former was at Fort Osage; the latter within thirty or forty miles, and going on well.

I shall leave this place in the morning, in one of the quartermaster's boats, and go on until I get with the steam boats. The quartermaster's boats are not more than half loaded, and are double manned, and will go much faster than any boats on the river.

Yours,

U. SEBREE.

Col. R. M. Johnson.

GEORGETOWN, *February* 25, 1820.

SIR: In addition to the statement I have already made on the subject of the expedition up the Missouri river, I make the following statement: Agreeably to your order, I left Belle Fontaine on the 5th of July, on board the steam boat Thomas Jefferson, and proceeded on up the river until we arrived within forty miles of Franklin, which is about two hundred miles from the mouth of the river; the water then became so low that it was impossible for her to proceed further up the river. I, without delay, advised you of the impossibility of proceeding further with the Jefferson. You wrote me that you could furnish keel boats to take all the loading in the Jefferson, if you only had a few days to provide hands; that you had sent one boat, and that you had another that would start in a few days; but that Capt. M'Gunnegle informed you by letter, that, unless you could start your boats on Monday, that he would have to start boats on account of the government. That only gave you from Saturday until Monday. The boat you sent was a fifty ton boat, and I put 313 barrels of flour on her, and the balance of the Jefferson's cargo was taken in the boats sent on by Capt. M'Gunnegle; and, on account of the orders given the officer commanding the detachment, it was with some difficulty I even obtained that.

Respectfully,

U. SEBREE.

Col. JAMES JOHNSON.

Interrogatories proposed to Thomas Hemstead by Colonel R. M. Johnson.

Interrogation 1*st.* State the common current of the Missouri river and its depth, from the 1st of April to August.

Answer. It is my opinion that, from the rise of the Missouri, in the spring, until the 1st of August, that it would afford from ten to thirty feet, and the current is from three and a half to seven miles per hour.

Int. 2*d.* Will you state if there was any boats lost on the river, and what they were loaded with?

Answer. I have heard it reported, and likewise have been informed, that there were two boats lost, one loaded with ordnance and ordnance stores; and, should it be the one I saw loaded at the mouth of Wood river, her cargo must have been valuable; and the other was principally baggage of the 6th infantry.

Int. 3*d.* Will you state any thing relative to the character of Capt. Craig and Major Sebree?

Answer. From the short acquaintance I had with both of these gentlemen, I do not hesitate to state, as regards Captain Craig, that I

thought him a most industrious, persevering, and attentive captain; and Major Sebree I do now, and always did, think, was a man of as great arrangement, industry, and management, as any that Colonel Johnson had with him.

Int. 4th. Was the last year a criterion, either for navigation or compensation?

Answer. As regards the river myself, I know nothing of the situation after July, but was informed it was very low in the fall; and the compensation likewise is unknown to me, only at the rates that were given last year by the quartermaster's department and Colonel Johnson.

Int. 5th. The condition upon which the quartermaster at St. Louis employed keel boats; by tonnage, or otherwise?

Answer. I think they were, or some of them, employed by the tonnage, as I loaded one of them, and was informed, after she was loaded, that I put in more than they had contracted to take.

Int. 6th. Will you state from what source you got your information relative to the contract of the quartermaster, as regards tonnage?

Answer. I recollect frequently to have heard both Captain M'Gunnegle, assist. dep. quartermaster at St. Louis, and the agent of Knox, Holderman, & Co. state that the last boats that were sent up the Missouri were upon a contract of tonnage; and the boats previously engaged by Captain M'Gunnegle I know nothing of.

The within is correct.

THOMAS HEMSTEAD.

The certificate of John Harris on the amount of freight that ought to be required on the Mississippi, and that contrasted with the freight on the Missouri.

He states that, during the fall and winter of the years 1818 and 1819, the freight on the Mississippi and Ohio rivers, from New Orleans to Louisville, was from four and a half cents to six up, and one cent down; and that, taking detentions into consideration, a trip can be performed every sixty days.

The size of the steam boat Johnson conveys ninety tons up and down said rivers. The Expedition carried to St. Louis two hundred and twenty-five tons, and the Thomas Jefferson two hundred tons; and, from the difficulties of the Missouri, it would not answer to load with more than half that amount. That he has navigated the Mississippi and Missouri in the steam boat Johnson, and that a trip can be performed on the Mississippi and Ohio rivers, from New Orleans to Louisville, and down again, as soon as one from St. Louis to Cow Island, with half the same load.

That the difficulties of the river increase very much from Cow island; and that it will require, within a few days, as long to make a

trip from Cow island to the Council Bluffs, as from St. Louis to Cow island; and further, that the difficulties on the Missouri are three or four times as great as those on the Mississippi and Ohio rivers.

And from the above he does not hesitate to say, that the freight from St. Louis to Cow island ought to be eleven cents per pound, and from Cow island to the Council Bluffs it ought to be nine cents.

That the steam boat Expedition arrived at St. Louis on the 12th of May, and the steam boat Johnson arrived at the same place, on the 17th of May; that they were detained near Belle Fontaine until the 5th of July, and that those boats, with their crews, were ready and prepared to have proceeded on from the 17th of May, and that, in consequence of their detention, they were prevented from reaching the Council Bluffs; and, as to the expenses of navigating the Missouri, in repairs, hands, tackle, &c. &c. it ought to be, and does require double that on the Mississippi. He thinks that it would require $20,000 to fit out the three boats, independent of the hire of hands, and their provisions.

A trip of the steam boat Johnson down and up the Mississippi, would clear about $10,000, independent of her expenses at the times and prices, before stated on the Mississippi.

That all three are good and substantial boats, not exceeded in any respect by any on the river; and that they are compelled to renew nearly all their tackle every year; and that the muddiness of the Missouri is very destructive to the boats and their machinery; he thinks that a boat will not last more than half as long on the Missouri, as on any other river; and that the difficulty of getting up on the Missouri, above the settlement, is much greater than on the Mississippi; and that the boilers have to be cleaned every third day; and that the boats are compelled to stop every night on the Missouri, which is not the case on the Mississippi.

In testimony whereof I have hereunto set my hand, at Belle fort, this 30th day of January, 1820.

JOHN HARRIS.

The Certificate of Captain Merit Scary, stating the amount of freight that was required on the Mississippi and Ohio rivers, in the fall and winter of the years 1818 *and* 1819.

He states the amount of freight received was from [illegible] to six cents per pound, from New Orleans to Louisville, and that the freight down was one cent; and that a trip up and down could be performed, taking detentions into consideration, in sixty days; and that, in his opinion, a boat that carried ninety tons would at the time

and prices above stated, clear, independent of her expenses, $16,000 a trip up and down said rivers.

And from his knowledge of navigating the rivers in the western country, he has no doubt but that it would take a much larger amount to fit out a boat to perform a trip up the Missouri river to the Council Bluffs, than would be required on the Mississippi or Ohio rivers.

In testimony, I have hereunto set my hand, at Frankfort, this 28th day of January, 1820.

MERIT SEARY.

GREAT CROSSINGS, 2d *March*, 1820.

DEAR SIR: In obedience to your request, and in reply to your interrogatories upon the subject of the navigation of the Missouri river, and the difficulties and dangers consequent upon the first attempt to navigate an unknown and almost unmanageable stream, in comparison with those which have been known and navigated for 30 or 40 years, giving the subject that consideration which its importance merits. I have to state, that my opinions have been formed from personal knowledge; and the information of the most respectable gentlemen, who are conversant with the expenses of freight, the great risk of navigation, in ascending the Missouri river, the conversation I had with the officers of the army, will sanction the statement I shall make; first, then, I do solemnly believe that, taking into consideration the risk and extra expenses, necessarily incident to the navigation of the Missouri, that the price of freight from Belle Fontaine to Council Bluffs ought to be, at the smallest possible calculation, four times the sum given in a voyage from New Orleans to Louisville. It must be obvious to every one who has become acquainted with this river, that the dangers and obstructions are much greater than those which present themselves on the Ohio or Mississippi, or indeed any river which has been subject to navigation west of the Alleghany mountains. The wages of labor are one third more than those on the two above mentioned rivers; the outfit is double the sum required in the voyage from New Orleans to Louisville, owing to the scarcity of provisions, the length of time employed in making the trip, and the difficulties before alluded to; our detentions on the river are more frequent and unavoidable; four hours in the day were occupied in getting wood, on account of the uninhabited situation of the country, and its distance from the shore. The sand bars in the river are constantly changing. I was at one time twenty-four hours in getting over, with the Johnson, a place only half a mile, in the deepest water. I could there find, in some places, a number of sawyers, snags, &c. present themselves, so as to render the river almost

impassable; we were under the necessity of cutting our way frequently. In ascending the river in keel boats, the hands were obliged to go on shore to cut a road on the banks, and sometimes to walk upon their hands and knees, to prevent sinking in the mud.

I have no hesitation in stating, that the vessels were completely equipped for the voyage, and that they sustained more injury than they would have done in four trips from New Orleans to Louisville.

The Jefferson is one among the first class of steam boats, and when she started in the expedition was completely new and in every respect fitted for the voyage to Council Bluffs.

I know, from having seen her run, that she has a first rate engine, and is fully capable of stemming the strongest current of the Missouri. The Johnson I know, from frequently heaving the log, to be as fast a boat as any on the western waters. I know, from personal knowledge and actual experiment, that she is capable of running as fast as the James Ross, which made a passage from New Orleans to Louisville in fourteen days only. The Expedition was completely new when she entered on the expedition of the Missouri; she was a vessel of the first class, completely equipped and manned; after her arrival at Cow island I should estimate her wear and tear at least thirty per cent. Every effort was made for the success and celerity of this difficult, and, to the contractor, expensive expedition.

I must conclude, by stating it to be my deliberate opinion, that no expedition was ever conducted with more zeal and energy since the commencement of this government. It was uniformly characterized by the most unabated ardor and invincible intrepidity.

I have the honor to be,
With high considerations of respect,
Your obedient servant,

GEO. COLEFAX.

Col. JAMES JOHNSON.

We certify, that we were passengers and in command of troops on board of the steam boat Expedition, from Belle Fontaine, Missouri territory, to Camp Martin, Cow island, on the Missouri river: the boat, during the passage, was commanded by capt. Silas Craig, of Kentucky. It is due capt. Craig to say, that she had a good crew, with the exception, perhaps, that he had hardly a sufficient number of regular bred sailors; that he commanded them as well as the nature of the service would admit any man to do; that his boat was well supplied with cordage and rigging of every description, so much so, that he was enabled to loan rigging to several of the keel boats to facilitate their navigation; that the progress of his boat was such, that where he found sufficient depth of water to float her, he was able to outrun the keel fleet and cut and load his own wood, with the assistance of the

troops on board; that he is entitled to much credit for his uniform and unwearied industry in the performance of every duty relating to the navigation of the boats, and for the promptitude with which he freed her from any casual difficulties.

G. HUMPHREYS, *Major 6th Inf.*
W. S. FOSTER, *Major U. S. Inf.*
J. J. LIVINGSTON, *Capt. U. S. A.*
T. STANIFORD, *Capt. 6th Inf.*
C. F. L. DURAND, *Lieut. 6th Inf.*
W. H. NICOLL, *Surg. Mate 6th Inf.*

The affidavit of Philip Houser, who, being of lawful age, upon oath saith as follows:

That he assisted in butchering Colonel James Johnson's pork and beef in Kentucky, intended for the government, and the Missouri and Mississippi; that it was of the very best quality: that he went with Colonel Johnson to the Missouri, and was intimately acquainted with his two steam boats, Expedition and Johnson, and their crews: that there was little or no repairs of importance necessary to be made in either of these boats; that they were ready to have proceeded up the Missouri when they arrived, in May, 1819. Any small repairs they might have needed could have been effected during the unloading and loading said boats, which would not have taken one week. The delay of the starting the expedition appeared to be from the manner adopted of inspecting the provisions, and as he (Houser) has had much to do with the butchering and salting meat, he gives it as his opinion that the resalting of the pork, and putting no pickle in it, which was the case there, was not as safe to keep as to have let it remain in the brine which was put to it in Kentucky. He therefore considered there packing unnecessary. As it was requested, however, Col. Johnson with promptness furnished the salt and hands. Colonel Johnson's hands were frequently idle on account of the absence of the inspector, when he had salt at the warehouse ready to proceed. The crew in each of said boats were excellent; every department had efficient and good men, and apparently seemed zealous and anxious to execute their duty with promptness and good faith. He saw no disorder among the crew, and believes there was none. He was nearly every day on board of these boats while at the mouth of the Missouri. This affirmant does not recollect the precise day of the arrival of Colonel Atkinson's troops, but it was sometime after Col. Johnson's arrival.

When Colonel Johnson arrived at Belle Fontaine, the keel boats which were to transport the troops were not all ready. On the 1st or 2d of July, 1819, after the arrival of Col. Atkinson, Col. Chambers, with a part of his regiment, went on up the Missouri, some

weeks prior to the 5th of July, when Colonel Atkinson and the steam boats started. At this time Colonel Johnson's steam boats were ready for service, and provisions plenty to load them, had they not been detained by the inspection. The steam boats Expedition and Johnson started from Louisville with full crews, and they never were deficient, from the time they arrived at Belle Fontaine, as before, but went on with a full set of hands up the Missouri.

Colonel Johnson's keel boats wanted very little repairs, and what little they did want was effected without delay. Colonel Johnson was very prompt in making his shipments; he pursued his business with indefatigable industry, and nothing could divert him from it.

The affirmant was present during nearly the whole time of inspecting Colonel Johnson's pork. He states that it was sound, sweet, and of excellent quality; and, out of the enormous amount he had inspected there for the government, there did not exceed ten barrels refused, after taking out of each barrel every suspicious piece.

This affirmant speaks from his own knowledge. Indeed, he believes there did not exceed five or six barrels. The barrels generally were overweight.

PHILIP HOUSER.

STATE OF KENTUCKY,
Scott county, sct.

This day personally appeared before me, a justice of the peace for said county, Philip Houser, and made oath that the above statement is correct and true.

Given under my hand this 13th day of March, 1820.

J. STEVENSON, J. P.

The affidavit of Smith Calvert, who, being of lawful age, deposeth and saith:

That he went on board the steam boat Johnson in May, 1819, from Louisville to Belle Fontaine, which was loaded with public stores that Colonel Johnson had purchased for the government. The Expedition arrived a few days prior to the Johnson. That he was well acquainted with the condition of the said steam boats and their crew; that neither of them wanted any essential repairs; not more than is ordinary on the best steam boats. All that they might need could with ease have been effected as soon as the boats could have been unloaded and loaded again for the trip. That they were first rate steam boats, and both had most excellent crews; good sailors for the sailors' department, good firemen for the firemen's department, and good engineers and carpenters, and well experienced. No man can excel Captain Silas Craig, of the steam boat Expedition. That

Colonel Johnson was ready from that moment to set sail on the expedition, if he could have received orders; but he understood Col. Chambers would not give orders, and that Col. Atkinson and Gen. Jesup had not arrived, nor did they arrive for some time after. This affirmant does not recollect the precise day of their arrival, but recollects perfectly to have seen Colonel Atkinson's troops pass by Col. Johnson's warehouse, at the mouth of the Missouri, in keel boats, sometime after Colonel Johnson had fallen back from Belle Fontaine to that place, and was then going on with the inspection of his provisions. This affirmant was present during the whole time of the inspection of Colonel Johnson's provisions. He used great industry and attention to obtain salt from St. Louis, to hurry on the inspection. This affirmant went one trip himself.

This affirmant well recollects that Captain Craig started to St. Louis, fifteen or eighteen miles below, at about two o'clock at night, and by seven o'clock the same day he had returned with 100 bushels of salt to the warehouse. Indeed, the trips generally were performed in the course of a day, and sometimes a little over one day. Colonel Johnson frequently had to wait for the inspectors when he had salt and hands ready to go on with the inspection; nevertheless, Major Hemstead and Wilson were very industrious, and two fine men, when they were present. That the crews on board of these steam boats were subordinate and efficient: that, after the arrival of Col. Atkinson, Col. Chambers obtained provision from Col. Johnson, and proceeded with part of his regiment up the Missouri, several weeks before the 5th of July, when the steam boats started; yet the steam boats were as ready to start then as when they did go on, and were uniformly ready from the time they arrived in that country.

He did not hear of the misconduct of any of Col. Johnson's agents at Prairie du Chien, except that two patroons got out of provisions, and they used government provisions for the boat, and which the officer, he understood, did not receipt for.

Indeed, he saw nothing during the whole year done by Col. Johnson calculated to delay; that his conduct was quite the reverse. He was always to expedite the government movements.

This affirmant well recollects that neither of the steam boats were delayed one day for the want of hands. There was no delay in the movements of the expedition for repairs of keel boats; indeed Colonel Johnson's keel boats wanted little or no repairs: they were good, except a boat he bought of Major Hunter, and understood she wanted repairs, and they were effected by Col. Johnson, although he purchased her for a boat ready for a voyage. This affirmant further states that, as to the number of barrels of pork which was rejected, that they did not amount to ten barrels, after taking out of each barrel every suspicious piece. He speaks from personal knowledge, as he assisted in this branch of Colonel Johnson's business, and was present every day while the inspection was going on. When the said steam boats arrived at Belle Fontaine the second time, on the commencement of their movements up the Missouri, part of the keel boats at

that place which transported the troops were still under repair, making wheels, &c.; so that this affirmant presumes that, after all the delay of the steam boats, occasioned by the inspection, that the troops at Belle Fontaine were not ready sooner than the time they did set out.

SMITH CALVERT.

STATE OF KENTUCKY,
Scott county, ss.

This day personally appeared before me, a justice of the peace in and for said county, Smith Calvert, and made oath that the above statement is correct and true.

Given under my hand this 13th day of March, 1820.

J. STEVENSON, *J. P.*

The affidavit of Berriwick Johnson is as follows: That he went from Louisville to Belle Fontaine last May, in the steam boat Johnson, which was loaded with government stores, furnished by Colonel James Johnson for the government of the United States.

The steam boat Expedition arrived at the same place a few days prior to the steam boat Johnson. That he was intimately acquainted with the condition of those steam boats and their crews; that both of said boats needed little or no repairs more than is almost constantly incident to steam boats which have complicated machinery. The boats were ready to proceed from the time they reached Belle Fontaine; and any repairs that might be needed could with ease have been effected while the boats were unloading and loading again, if the provisions had been received, and the unloading commenced the moment they arrived.

The crew of each boat were good; they were first rate sailors, and on each boat as many as necessary. The balance engineers, carpenters, firemen, &c. were excellent; indeed, no substantial objection could be made with propriety.

That he the said affirmant was the first man that Colonel Johnson sent to St. Louis for salt to repack the meat: that, although Colonel Johnson's warehouse was fifteen or eighteen miles above St. Louis, the trip was performed in about one day, and salt deposited in the warehouse. Colonel Johnson, in procuring salt, was very prompt in getting it from St. Louis; and there was at all times a plenty of hands furnished by Colonel Johnson to perform the labor: that, in a very few days, a sufficiency was inspected to load two keel boats. This affirmant commanded one, and Captain Levi Craig commanded the other, to Fort Crawford and Prairie du Chien: that he performed the trip to Prairie du Chien, and back to Col. Johnson's warehouse,

in 31 days; that the two boats and provisions reached that place (Prairie du Chien) before the troops arrived which were destined for St. Peter's: that General Jesup and Colonel Atkinson had not arrived when he left Col. Johnson's warehouse; that, on his return, he met another keel boat which Col. Johnson had sent by a French patroon who was above the upper rapids, and who must have reached Prairie du Chien in ten days after: that, while he was at Fort Crawford, he heard of no improper conduct of Col. Johnson's agents, with respect to their conduct, to the public service, or public provisions. This affirmant further states that, before he started, and after his return, to the mouth of Missouri, he assisted in the inspection of Col. Johnson's meat and other provisions; that they were of an excellent quality; and that, on Colonel Johnson's part, it was conducted with great energy and industry: that, out of the whole amount inspected, he is of opinion there were not ten barrels of his meat refused, after taking out of each barrel every suspicious piece of meat: that good order was kept on board of both these steam boats while they lay at the mouth of the Missouri, at said warehouse, while this affirmant remained there himself. That he is no relation to Colonel Johnson, but was employed by him to do his business; that he has been acquainted with Col. Johnson for many years, and he scarcely knows his equal, as a man of business, industry, enterprise, integrity, and good sound system.

BERRYWICK JOHNSON.

STATE OF KENTUCKY,
Scott county, ss.

This day personally appeared before me, a justice of the peace in and for said county, Berrywick Johnson, and made oath that the above statement was true.

Given under my hand this 13th day of March, 1820.

JOB STEVENSON, *J. P.*

Questions put to Captain James M'Gunnegle by R. M. Johnson, agent of James Johnson.

Question 1: You state in your answers to questions put to you by the quartermaster department, that the steam boat Jefferson was about sixty days performing a trip from Wheeling to St. Louis. First, do you know the particular defect of that boat which prevented her in the first instance from sailing well? I mean from Wheeling to Louisville, Kentucky. Did you not understand from the officers who descended the river, that it was owing to the want of sufficient vent for the water in the evolution of the wheels? Secondly, did you know or not, by information or otherwise, that the said steam boat

remained at Louisville at least thirty days, and where she underwent repairs in additional work, to the amount of from 8 to 10,000 dollars? Thirdly, do you know or not, by information or otherwise, that when the Jefferson was ascending the Mississippi, towards St. Louis, that the piston head did break, which detained the said boat about thirty days, until the party could send to Louisville for a new piston head, where it was to be made and returned? Fourthly, after the detention, do you know whether every industry was used or not to repair the injury? Fifthly, do you know how many running days it took the Jefferson steam boat from Louisville to St. Louis?

Answer. I do not know the particular defect of the steam boat Jefferson, which prevented her from sailing well from Wheeling to Louisville. I have heard lieutenant M'Cabe speak of her defects, but do not now recollect what they were. I understood she made some delay at Louisville, but did not hear the time, or object of this delay stated by any person. I did learn through major Long, of the topographical engineers, who was on board the Jefferson, on her passage up the Mississippi, that her piston head broke some distance below St. Louis, that they were obliged to send back to Kentucky for a new one; I also heard this gentleman speak in general terms of the miserable construction of her machinery. I did not understand the time she was detained in consequence of this accident, nor did I ever hear any thing said of the "industry used to repair the injury," nor have I any knowledge of the number of running days it took this boat from Louisville to St. Louis.

Question 2. Do you consider it as your opinion, that the breaking a crank or a piston head, or happening of such like misfortunes, a rule or criterion by which to test the capacity and power of a steam boat?

Answer. It is not, nor ever was my opinion, that the breaking a crank or a piston head (or any other accident of this kind happening) was a rule or criterion, by which to test the *capacity* or *power* of a steam boat (nor can I conceive how this idea was conveyed to you;) that where accidents of this kind happen so frequently, as they have done with the boat in question, it is, in my opinion, conclusive evidence that the machinery must have been miserably constructed, or composed of the worst materials.

Question 3. Are you acquainted with steam boat navigation? If so, state your opportunities as to a knowledge of steam boats and steam boat navigation, and also state whether it be common or not for the best boats under the best management to meet with accidents, such as you have detailed, as testing, in your opinion, the power of the steam boats furnished by James Johnson, under contract with the government?

Answer. I have no practical knowledge of steam boats or steam boat navigation, yet I believe it is common for the best boats under the best management to meet with accidents, but not such frequent

accidents as have occurred to the Jefferson between the months of May and August, 1819.

Question 4. When did general Jesup and colonel Atkinson arrive at Belle Fontaine, and when did the sixth regiment arrive at the same place; what was the employment of the troops, were most of them or part of them engaged in preparing government keels for the trip to Council Bluffs, and what time was this work done, and how long previous to the movement up the Missouri?

Answer. General Jesup arrived at St. Louis about the 28th of May, 1819; colonel Atkinson on the 1st of June, and the sixth regiment, I believe, reached Belle Fontaine about the 5th of the same month. Shortly after the arrival of the troops, I heard colonel Atkinson state, that his movement was entirely depending on the steam boats, and the supplies on board, that he found they would not be in readiness to move in less than ten or fifteen days; that, in the interim, he would make an experiment in the application of wheel power to propel the government keels. If he found it succeed, he would have wheels prepared for all the boats; which he could have executed by the time the steam boats were ready to move. This work was commenced by the troops, about eight or ten days after their arrival, and I believe was not completed until one or two days after the steam boats reached Belle Fontaine, from the mouth of Wood river.

Question 5. How many days were you at the mouth of the Missouri, during the detention there?

Answer. The last time I visited the steam boats at the mouth of Wood river, I continued there three days.

Question 6. You believe that it was not until the 27th of June that the Johnson and Expedition were reported to be in readiness for sailing; were you there at that time, did you at this or any other time, or any other officer, call on James Johnson to know if those two boats were ready, and, if so, who was that officer; and what was the reply of James Johnson? If such a call was made upon him by you or any other officer, please to say whether it was in writing or a verbal call, and whether he gave a verbal or written answer.

Answer. I believe it was on or about the 27th June, that the steam boats Expedition and Johnson were reported to be in readiness to sail from the mouth of Wood river, and I was there when they did sail. I did not then, nor at any other time, call on colonel Johnson to know if his steam boats were in readiness to move, nor did I hear or see any other officer make such call. But I heard, in general conversation, on the day or the day after my arrival at the mouth of Wood river, that colonel Johnson had been called on to know when he would be ready to proceed to Belle Fontaine, and I then understood that the boats would be prepared to move on the following day.

Question 7. If the troops could not move without the stores on the Jefferson, why were not keels or some other means ordered to bring them up during the inspection? Was it not because the troops were engaged in other preparations, which were indispensable, until four or five days before the movement up the Missouri?

Answer. I was ordered to procure keel boats for the purpose of bringing up the troops and a part of the stores on board the steam boat Jefferson, which order I communicated to Mr. Andrew Johnson (one of colonel James Johnson's agents) and told him it was not my wish to interfere with the transportation of those troops and stores, and that I would be glad he would make arrangements to have them brought up. He assured me that the steam boat Johnson should be despatched on the following day to effect this object, otherwise keels should have been employed on account of the government. The troops were employed in making the wheels before mentioned, until a very few days before they started, but this labor was never considered indispensable to the movement. I have frequently heard colonel Atkinson state, that he could have moved within ten days after the infantry arrived, but for the detention recited in answer fourth.

J. M'GUNNEGLE.

DISTRICT OF COLUMBIA,
Washington County, ss.

On this 3d of April, 1820, personally appeared before the subscriber, a justice of the peace for the county aforesaid, captain J. M'Gunnegle, who made oath, in due form of law, that the foregoing answers to the interrogatories of colonel R. M. Johnson, subscribed by him, are true, so far as the facts related come within his own knowledge, and as derived from the knowledge of others, he believes to be true.

R. C. WEIGHTMAN.

CITY OF WASHINGTON, 29*th March*, 1820.

DEAR SIR: In consequence of accidents which would occasionally interrupt the steam boats furnished by James Johnson for the Missouri, under contract with the government, I have considered it due to the interests of my brother to request you to communicate to me such remarks and observations as you made last summer in descending and ascending the Ohio and Mississippi rivers from Louisville to New Orleans, and back again; also, your knowledge of the character andstanding of Ruggles Whiting, Esq.

With sentiments of respect, &c.

R. M. JOHNSON.

Hon. HENRY CLAY,
Speaker of the House of Representatives.

Col. R. M. Johnson.

Dear Sir: In reply to your note of to day, I have to state that I descended the Ohio and Mississippi last spring in the steam boat Napoleon, having embarked at Shippingport, the foot of the rapids of the former, about the 20th of April. At that time your brother's fleet, as it was called, intended for the Missouri, lay moored at the port, evincing a great deal of activity in preparations for their departure. The Napoleon was a boat of good character, and her commander bore a high reputation for enterprise and vigilance. In the course of the voyage, a part of her machinery got disordered, which retarded somewhat our progress. We passed on the Mississippi two, if not three, steam boats, which were lying by, having broken their cranks: such incidents are frequent. Indeed, I doubt whether any boat, that has been a year or two on those waters, has escaped them. When they occur, the boat is subjected to a detention of from thirty to fifty days, depending on the distance where the accident occurs from Louisville, to which place resort is usually had to supply the loss.

On my return, I ascended the Mississippi in the Paragon, a beautiful boat, built at Cincinnati, under the eye of one of her owners. It was her first voyage, and she broke her lever beam, a most essential part of her machinery, about thirty miles below Natchez. They had to make one, to supply the place, out of the bastard live oak, which occasioned several days detention.

I have known Ruggles Whiting, Esq. for several years. He came from Boston, and he is distinguished for his enterprise, experience, and practical good sense. He is very conversant with the subject of building and navigating steam boats, and enjoys, in a very high degree, the confidence of all who know him. I have understood that, prior to his settlement at Louisville, he was held in much consideration at Boston as a judicious and respectable man.

With great regard,
I am yours,
H. CLAY.

Steam Boat Thomas Jefferson,
On the Missouri, 20th January, 1820.

Dear Sir: Being called on by the owners of the steam boat Jefferson, and yourself, to give you a statement of my views respecting the navigation of the Mississippi and the Missouri rivers, I consider the risk of navigation on the Missouri at least four times that of the Mississippi. My reasons are as follows:

The Mississippi is at all times navigable for boats from 60 to 450 tons: the obstructions are but few, when compared with the Missouri.

In the Mississippi, we can run our boats all night; the sand bars are always found on one or the other shore, or nearly so, which can be easily passed; they are generally permanent; the sawyers are but few when the water is in a moderate stage. There is no time lost in procuring fuel, it being at all times ready cut on the shores. Under those circumstances, we can perform a voyage from Louisville to New Orleans, and back, in forty or fifty days, including all time for detention, &c. Every good boat will bring up a cargo equal to her tonnage, but they cannot in the Missouri. The price of freight in the years of 1818, and 1819, from New Orleans to Louisville, for heavy articles, four and a half cents; for bales of dry goods, and light articles, six cents; down freight one cent per pound. A boat and rigging will last much longer, and the engine four times as long, on the Mississippi, as it will on the Missouri. We, on the Mississippi, never are compelled to clean our boilers but once or twice in a voyage from Louisville to New Orleans and back; the mud does not settle and bake, and the sand does not cut the cocks and valves, even at the muddiest time of the Mississippi, as it does on the Missouri.

Having given you a statement of the Mississippi, I next proceed to point out to you the many difficulties which attend the navigation of the Missouri with steam boats, and what, in my opinion, would be a freight on the Missouri per pound, equal to the freights on the Mississippi.

In the first place, the Missouri is at all times very muddy, which settles when boiled, and bakes to the boilers in such great quantities as to compel us to clean out the boilers every third day. I have seen in that short time the boilers half full of thick mud, and baked so hard to the bottom of the boilers, that I have had, at all times, to send a man in, with an iron scraper, to clean the boilers, to prevent them from burning out. This requires a great loss of time to get the furnace and boilers sufficiently cool to clean them. This is not the only bad quality which attends the muddy water; the sand, contained in it, is very fine and sharp, which is thrown out in the steam, and operates very severely on all parts of the engine and cocks, valves, &c. which it comes in contact with. A set of cocks and valves will last but two or three months on the Missouri: whereas they will last from one to two years on the Mississippi. By their wearing so fast, they make it extremely difficult to keep the engine in order, and those articles are very expensive to replace when thus worn out; besides there is great waste of time to put and keep them in order. I have given you the effects of the muddy water and sand on the engine; next the difficulties of the river in general. In the first place, the current is very strong and rapid at all times. I found the current equally strong to the most rapid points in the Mississippi. The river cuts its way through the sand bars in so many different directions, that it is almost impossible to keep the proper channel at any stage of the water, for each rise and fall produces new bars and channels. It is impossible to get a pilot who can know the channel of this river; it is

frequently the case that boats ascending this river get in a channel, and run a mile or two and get to the upper end of the sand bar, and not find water to get out, and then have to drop all the way back, and take some other channel. The river in some parts is very wide, and cut in many channels, and those channels very full of large trees fast in the sand, which makes the navigation extremely difficult and dangerous. The channels are, in many places, almost filled with those trees called planters: these, and the extreme rapid current, make the navigation of the Missouri extremely dangerous for boats of every description. It requires, at all times, a double set of hands to navigate this river with keel boats, to what is required on other rivers; and it also requires double crew on steam boats, the channel being so difficult to follow, that the boat gets very frequently aground, and then it requires a much larger than an ordinary crew for other rivers to navigate a boat of the same size. Next the wood is not so good as on the Mississippi, and much more difficult to procure. We have to cut all the wood as we proceed, and this takes a considerable time each day, and requires more hands, on that account, to navigate this river than the Mississippi. In consequence of the many difficulties attending the navigation of the Missouri, there is no steam boat that can carry up this river more than half her tonnage. I do assert, most positively, that I can perform a trip from Louisville to New Orleans and back, sooner than I can from St. Louis to Cow Island; from that point the difficulties of the river increase, and it requires about the same time to perform a trip to Council Bluffs, or within a few days. When I take into consideration all the difficulties and additional expenses on a trip from St. Louis to Cow Island, over that from Louisville to New Orleans, I should say that a boat would clear more money for her owners, at the price of freight from Orleans to Louisville, than she could from St. Louis to Cow Island at twelve to fifteen cents per pound, and from there to Council Bluffs, ten to twelve cents.

The expenses of a steam boat are very great. I have made a calculation of the crew of the Jefferson for one year: their wages will amount to $15,000, the rigging, together with all other outfits for the year, will amount to $8,000, at a very low rate. The tonnage of the Thomas Jefferson is 222$\frac{81}{95}$, as will appear by the custom house certificates. This boat is inferior to none on the western waters; her engine is one of the best and most powerful on the western waters. I have found it at all times sufficiently powerful to propel her against the most rapid current of the Mississippi with her full cargo, say two hundred and twenty-two tons. But she, nor no other steam boat, can ascend the Missouri with but little more than half her tonnage, owing to reasons above stated. With regard to the last, of steam boats employed on the Missouri, from my own knowledge of the difference between the two rivers, I am certain that a boat and engine will not last more than four years, whereas they will last nearly double that time on the Mississippi. As a proof of this, I fitted the Jefferson out with a complete suit of rigging and a double

set of anchors for the Missouri expedition; this rigging will be so much worn, that we will be compelled to get a new suit as soon as the spring opens. The loss of anchors is more than double that on the Mississippi, in consequence of there being so many more large logs in the bed of the Missouri, which our anchors get hold of when let go, not being able to get them clear, we have to lose them. A suit of rigging for a steam boat on the Mississippi will last, generally, two years sea worthy. But, from the constant use of it in heaving off sand bars, &c. it will not last more than one third the time it will on any other rivers I have navigated. I now have given you my views with respect to the navigation of the Mississippi and Missouri. I next will give you my opinion of the other two boats, the Expedition and Johnson, employed in the Missouri expedition. In the first place, the Expedition is about the same tonnage of the Jefferson, perhaps a little more. This boat is, in every respect, a first rate boat, and was completely fitted out for a voyage up the Missouri; she is considered a fast running boat, and has an excellent engine, which is, in every respect, sufficiently powerful to propel her with her tonnage, against the most rapid currents in the Mississippi. But, sir, I am certain she cannot ascend the Missouri with but little more than half her tonnage, nor do I believe that there can be a boat and engine built that can do it. The Johnson steam boat is one hundred tons burthen; and is, in every respect, a first rate boat also. She is always considered one of the fastest boats on the Mississippi. I was frequently on board of her, and she was in every way completely fitted out for the voyage she was employed in.

As respects the transportation, there was, to my own knowledge, ample preparations at all times to have carried up the whole of the provisions by giving the shortest notice.

I am, Sir, with respect,
Your humble servant,
H. J. OFFUTT,
Master of the S. B. T. Jefferson.

Col. James Johnson.

Being called upon to state the character and standing of William D. Hubble, we state:

That Mr. Hubble lived with one or both of us in one employment for two or three years; and that we have the most implicit confidence in his integrity, and would rely on his statements for truth, as soon as on those of any man whatever.

BUD. SMITH,
ROBERT S. TODD.

Lexington, *March* 1, 1820.

CITY OF WASHINGTON, *February* 21, 1820.

SIR: In a letter which I have from Messrs. William Stackpole and Ruggles Whiting, I am referred to you for an opinion of their standing and character as men of veracity, integrity, and capacity, for business.

As the letter will be used by me to substantiate the facts contained in it, your answer to the substance of the above reference will oblige me.

With sentiments of great respect,
Your obedient servant,
R. M. JOHNSON.

Hon. HENRY BALDWIN,
Of the House of Representatives.

Please return this with your answer.

February 22, 1820.

I am personally well acquainted with William Stackpole and Ruggles Whiting, and consider them men of strict veracity and unblemished integrity. They are in business men of activity and enterprize.

HENRY BALDWIN.

Hon. R. M. JOHNSON.

CITY OF WASHINGTON, 30*th March*, 1820.

SIR: Major John O'Fallon has given his affidavit to be read in evidence before the referees in a case between the quartermaster's department and James Johnson.

In consequence of some questions put to major Hempstead and captain M'Gunnegle, as to the indorsements of major O'Fallon of certain bills of James Johnson, and their answers, I am in duty bound to request you to state the standing and character of major O'Fallon in every respect in which it may seem necessary to speak, to place him in a proper light before the referees.

It is but justice to major O'Fallon to say, that the bills which he endorsed, and paid by him, I paid before he gave his affidavit, and have his receipt for the same.

Yours, sincerely,
R. M. JOHNSON.

Hon. JOHN SCOTT.

CONGRESS HALL, *March* 31, 1820.

SIR: In reply to your note of yesterday, which I have just received, I answer freely, that I have known and had a long and intimate acquaintance with Mr. John O'Fallon, and I know him to be a man of character, integrity, and truth, on whose statement and testimony, were he even interested, I should have no hesitation in placing unequivocal reliance.

Respectfully,
Your obedient servant,
JOHN SCOTT.

Col. R. M. JOHNSON.

STEAM BOAT JOHNSON, 15*th June*, 1819.

I hereby certify that, as master of the above named steam boat, chartered by government to ascend the Missouri river, I applied, on the 22d of May last, to Colonel Chambers, commanding at Belle Fontaine, for orders. He declined giving any, and in consequence we were detained fifteen days, which would produce, if employed in the New Orleans trade, at least two hundred dollars per day.

Given under my hand,
MICHAEL BOLAND.

Answers of Colonel Chambers to interrogatories proposed by Colonel Richard M. Johnson.

Interrogatory 1*st*. State the common current of the Missouri as to depth, from April until July and August, 1819.

Answer. As I ascended the river in keel boots, I consequently paid very little attention to the depth of the water; but it is my opinion that, from the rise of the river in the spring until July, that it would afford from ten to thirty feet.

Int. 2*d*. State the difficulty of the river, particularly the last year.

Answer. As I never ascended the river until the last year, I can therefore only state that the difficulties were very great in consequence of the velocity of the current, which I conceived ran from five to seven knots per hour. I recollect that, on one occasion, falling in with the Expedition steam boat, she had been compelled to let go her anchor in consequence of the velocity of the current, when her wheels were performing fourteen and a half evolutions per minute, from Captain Craig's report. To navigate the Missouri with safety, it will require active, experienced hands, constantly on the alert to avoid steering on the planters and sawyers, which abound in the river.

During the last summer there were two keel boats sunk, one manned by a detachment of infantry under the command of Capt. Livingston, near Grand river, and the other loaded with (I understand) munitions of war, about sixty miles below the Council Bluffs. There were no articles saved out of either of them of any consequence.

Int. 3d. Was the last year a criterion, either for navigation or compensation?

Answer. I am only enabled to state that the river was in July considered to be uncommonly high, and that in the fall of the year as much in proportion below its usual depth. I speak from the general opinion expressed by its inhabitants, whom I heard converse on the subject; and, as it respects compensation, I never heard any inquiries on the subject.

Int. 4th. Please state the character of Captain Craig, of the steam boat Expedition, and how long you were with either the Expedition or Johnson, and what was your opportunity of knowing them.

Answer. The Expedition arrived at Belle Fontaine on the 18th of May, and remained there until the 25th, during which period of time I had an opportunity of observing the manner in which duty was performed daily. I again fell in with her at Fort Osage, and occasionally during the passage from thence to Cantonment Martin. The disposition of Captain Craig ever manifested an ardent wish to perform his incumbent duties, except on one occasion, which occurred at Fort Osage, where the apparent danger of the river induced him to propose making a halt, and transporting the provisions in keel boats. This was however overruled, but I did not think that he exacted that degree of respect and prompt obedience from his crew which ought to characterize the commander of a steam boat. They did not appear to me to be experienced; and, from Capt. Craig's own report, they had but one seaman on board. I have, on some occasions, witnessed, that, when an order was given relative to the boat, that a dispute would arise among the crew about whose task it was to perform it. This transpired at Belle Fontaine; but I am induced to believe that the men became more prompt and obedient as they progressed up the river. Of the Johnson's crew I have no knowledge.

Int. 5th. How many men were there stationed at Cantonment Martin?

Answer. There were the companies of riflemen under the command of Lieut. Col. Morgan. I presume that these companies would average about ninety men each.

TALBOT CHAMBERS,
Colonel United States army.

Sworn and subscribed to at Carlisle, 23d March, 1820, before me, a justice of the peace for the county of Cumberland.

ELISHA DOYLE.

The certificate of Captain Silas Craig, of freight on the Mississippi and Ohio rivers: that contrasted with the freight that should be on the Missouri river.

He states that, during the fall and winter of 1818 and 1819, he commanded a steam boat on the Ohio and Mississippi rivers, and that the price of freight was from four and a quarter to six cents per lb. from New Orleans to Shippingport, and one cent per pound for her load down; and that the trip could be performed in fifty days up and down said rivers. He states that the steam boat Johnson would carry about 90 tons; steam boat Expedition carried about 225 tons to St. Louis, and the steam boat Jefferson about 200 tons; and, owing to the difficulties of the Missouri, it would not answer to load more than half the same load as they would carry on the rivers above mentioned. He states that the steam boat Johnson would clear about ten thousand dollars a trip up and down; steam boat Expedition would clear about twenty-two thousand dollars, and the steam boat Jefferson about twenty thousand dollars per trip up and down, at the time and prices above mentioned. He states that the steam boat Johnson and steam boat Expedition are first rate boats, and were well provided with tackle, as he has commanded both boats; and that the Jefferson is a strong, substantial boat, with as good an engine as is on the western waters. He states that a trip can be performed from New Orleans to Shippingport, and back to New Orleans, as soon as a trip can be performed to Cow Island from the mouth of Missouri, and that the risk on the Missouri is much greater than on the Ohio and Mississippi. He states the price of freight from the mouth of Missouri to Cow Island should be twelve and a half cents per pound, and that it ought to be ten cents per pound from there to Council Bluffs, agreeable to the prices of freight in 1818 and 1819. He states that the expedition arrived at St. Louis on the 12th or 13th of May, 1819, and that they were detained near Belle Fontaine, with their crews, until the 5th July, and that from the detention they were prevented from reaching Council Bluffs with their loads, and probably returning the same season. He states that, supplying those boats with their tackle, and other articles necessary for the voyage, could not cost less than twenty thosand dollars, and that leaving the crew unpaid. He states that the expense of tackle on the Missouri is more than double what it is on the Ohio and Mississippi, and that, from the muddiness of the water, the engines are considerably injured.

SILAS CRAIG,
Captain steam boat Expedition.

FORT CALHOUN, *March 27th*, 1820.

SIR: I believe, from the best recollection that I have, that your steam boats, Johnson and Expedition, arrived here about the 15th,

or not later than the 20th, May, 1819; and that, from that time until the whole of the provisions were shipped. I have no hesitation in saying that I have never seen the same exertions made by any man in my life, and that any delays that may have happened, could not be attributed to you. I know that you had salt, and men at this place, many times, doing nothing for want of the proper officers to attend to the inspection; and, in one case that you called on me to aid in the inspection of one keel boat load, in the absence of the inspector, which was done, and the boat started, and that the inspector approved of it, and that the boat went on without any other inspection on that load. I feel free in saying that I never have seen a man make use of more industry than was used by you in getting the provisions started from this place. I know that the steam boats left this place well manned, and, in every respect, well equipped for the Missouri. The many keel boats fitted out by you at this place were, when they left here, well manned and officered for both rivers. I recollect that you were called on by the assistant quartermaster to send a boat to St. Louis; that we had a load for you, and that your boats and hands were detained on expense from fifteen to twenty days. I believe that all your boats, both steam and keels, were altogether capable to perform their trips, &c. Your provisions, pork, beef, &c. were the best that I have ever seen, for so great a quantity together.

Respectfully,

ISOM GILLHAM.

Col. JAMES JOHNSON.

STATE OF ILLINOIS,
Madison county, ss.

Isom Gillham, being duly sworn, saith, that the foregoing statement is correct and true, according to the best of his knowledge, recollection, and belief.

ISOM GILLHAM.

Sworn to and acknowledged before me, a justice of the peace in and for the county and state aforesaid, this 27th March, 1820.

HAIL MASON, *J. P.*

No. 4.

Letter and opinion of William Pinkney, Esq. submitted to the Arbitrators in the case of Colonel James Johnson.

WASHINGTON, *29th March*, 1820.

DEAR SIR: I have carefully examined the contracts between the government and colonel James Johnson, of the 6th of December, 1817, and the 25th of November, 1818. That of the 25th of Novem-

ber, 1818, relates particularly to the subject submitted to the arbitrators, and is, as I think, perfectly explicit. By its first article it binds colonel Johnson to deliver at St. Louis, among other things, 689 barrels of *prime pork*.

By the second article it is provided, that the pork, peas, &c. shall be delivered *in strong and secure barrels*, and the soap and candles in strong and secure boxes, of a convenient size for transportation.

By the third article it is provided, that all the articles delivered, pursuant to this contract, *shall be inspected at the time of delivery* by the inspectors for the town of St. Louis, or (if none such) by some person under oath, of good character, &c. to be appointed by the assistant commissary of subsistence and colonel Johnson; the said James Johnson to be liable for *the expenses of inspection, and for all other expenses until the articles are safety delivered at such storehouse as may be designated by the United States at the town of St. Louis*.

By the fifth article it is provided, that in case of failure or deficiency in the quantity of supplies, the commissary general, or his assistant, may supply the deficiency, &c. and James Johnson shall forfeit thirty-three and one third per cent. thereon.

I understand it to be inquired, whether James Johnson was bound by this contract (either taken separately or in connection with that of 1817) to cause the supplies which he furnished under it to be resalted and repacked.

The contract of 1818 does certainly require: First, that the articles furnished shall be *safely delivered* free of expense to the United States.

Secondly, That *when delivered*, they shall be of good quality and condition, and, as respects the *pork*, that it shall be what is called *prime*.

Thirdly, That they shall be *delivered in strong and secure barrels*, or, in regard to the soap and candles, in strong and secure boxes; and lastly,

That, *in order to ascertain all this*, there shall be *an inspector*.

But the contract of 1818 requires *nothing more;* and if the officers of the government, from abundant caution, have chosen to have the provisions subjected to a new process (they not being found on inspection to be otherwise than good) with a view to secure them, according to their notions, against the possibility of deterioration *during their ulterior transportation and until they should be wanted*, it was their affair altogether, and James Johnson had nothing to do with it.

The stipulation that James Johnson shall bear the expenses of inspection "*and all other expenses, until the articles are safely delivered*," cannot be made to cover this case of resalting and repacking. The "other expenses" are such as are to precede the *safe* delivery of the articles, or, in other words, the expenses of their transportation, and have no reference whatever to a second preparation of them (which the contract does not demand or authorize) for the purpose of some advantage, real or imaginary, looking to their further destination with which James Johnson was not connected by the contract.

He was to deliver them safely in the prescribed condition (*and subject to a trial by inspection*) at a certain place, and if the articles answered the description in the contract *at that place*, and *if they stood the test of an inspection* (the only test prescribed by the contract) the contractor had performed his whole duty. If any thing else was thought desirable by the agents of the government, it was their business to cause it to be done at the charge of the government. They had no power to inflict any loss upon James Johnson but *through an inspection;* and if the articles passed that inspection there was an end of the matter. They could not undertake to decide, *at his risque*, that the articles were not in good condition *even at the place of delivery*, far less that they *would not be* in good condition, without being again salted and packed *at the place where they might be consumed. Inspection* was all that they could demand, and by *that* both they and he were to be concluded. If upon inspection they were condemned, they were to be rejected; if found good, they were to be received and held at the risk of the government. The words "until they shall be *safely delivered*," do not apply to the articles at the place or places of their *final destination* with a view to which the resalting and repacking were ordered, but to the place of *original delivery*, (St. Louis,) where they were to be tried by inspection, at the expense of the contractor, and the words "*safely delivered at the storehouse at St. Louis*," show, that prospective calculations as to future possible injury at other places to be guarded against by new and extraordinary precautions not provided for by the contract, must be the concern of the government only.

The contract of 1817 would explain this point, if it stood in need of explanation. By the 4th article of that contract it is stipulated that whenever the provisions, to be furnished under it, shall, in the opinion of the commanding officer of the post or place, be *unsound, unfit for use*, or *of an unmerchantable quality*, a survey shall be had thereon by two disinterested persons, &c. who shall have power to condemn such part of the provisions as to them may appear unfit for use, &c. "and all provisions, condemned by such survey or inspection, may be destroyed by the commanding officer."

The contract of 1818 is manifestly to the same effect in this particular, save only that the last prescribes inspection as a thing of course.

And the last clause of the third article of the contract of 1817, proves what is meant by the phrase "other expenses" in the contract of 1818. For, (after providing that, if the contractor shall be required to deposit provisions at one place or post, and shall afterwards be required to move them, to be delivered at another, the expenses of transportation to such other place or post shall be borne by the United States,) it goes on "it is also understood that all supplies are to be originally delivered at the posts where they may be required, *without expense to the United States*." Can there be any doubt that the expense intended by this analogous provision is merely that of transportation, or that any expense, connected solely with an ulterior destination, of whatever nature it may be, is to be that of the government? And

why should the contract of 1818, (evidently modelled upon its predecessor,) receive a different interpretation when the additional expense does not arise out of *the judgment of the inspectors*, but is simply the result of the opinion or will of the officers of the government, to whom the contract denies all power to determine the quality and condition of the articles, by referring that determination to inspectors only?

In a word, I believe it to be clear that the resalting and repacking, in this case, was not, in any respect or to any degree, upon the responsibility of the contractor.

WM. PINKNEY.

To the Hon. R. M. JOHNSON,
of the Senate of the United States.

Opinion on the Contract of the 2d of December, 1818, *between General Jesup*, (*as Quartermaster General*,) *and James Johnson, Esq.*

The contract, on the part of Mr. Johnson, is,

First. To furnish two *steam boats*, calculated to navigate the Mississippi and it waters, and to place them subject to the orders of the Quartermaster General by the 1st of March, 1819, for the transportation of provisions, &c. to the military posts on the said waters, viz: the mouth of St. Peter's, near the falls of St. Anthony; the mouth of the Yellow Stone, on the Missouri; and Belle Point, on the Arkansas, and all other posts, whether intermediate or beyond those enumerated.

Second. In case this mode of navigation should succeed, and it should be found, at any time, that the two steam boats should not be sufficient to place at proper periods, and when the state of these waters shall admit of it, all the provisions, &c. *then*, on *due and reasonable notice*, to provide, forthwith, *one other or more* steam boats, as the case may require, to aid in the said transportation.

Third. If, *upon experiment*, it shall be found that any difficulty exists as to the entire transportation of the provisions, &c. in this way, *then*, in a reasonable time, say thirty days, to provide a sufficient number of *keel boats*, and to transport the same by them.

The contract, on the part of the government, is,

First. To furnish a corporal's guard for the protection of each boat, thus employed, and the property laden therein.

Second. "And whereas it is difficult to fix the precise and definite compensation or allowance to be made to the said J. Johnson, for the due and faithful performance on his part, &c.: and *whereas the public service requires that this arrangement should be made at this time*, it is agreed that he shall be allowed a reasonable compensation, taking into consideration the hazard attending the navigation of waters at points so distant, and heretofore unexplored by such mode of navigation, *and* the ordinary rate of transportation, as the basis for *such*

allowance; and, also, such reasonable and *further* allowance as may be *equitable and just*: provided, that if, in the arrangements and operations of the government, the said steam boats should be detained in their destination from the want of concentration of the articles, &c. to be transported, *or otherwise*, and not imputable to the negligence of the said J. Johnson."

Third. To make, from time to time, advances, &c.

Fourth. In case of disagreement between the parties, as to the allowance or compensation, &c. that the matter shall be settled by arbitration.

The compensation to be paid by the government to James Johnson under this contract is, by its terms, *two fold.*

First. *A reasonable compensation for the service to be performed*, and the basis of this compensation is declared to be, 1st., a consideration of the *hazard* attending the navigation of waters at points so distant, and heretofore unexplored, &c. 2d. *The ordinary rates of transportation.*

Second. And, also, such reasonable and *further* allowance as may be *equitable and just*, for all such *detention* of the boats, as shall not be imputable to Mr. Johnson's negligence in the performance of his contract.

That a strict interpretation should not be given to this contract, with reference to the compensation, is certain. The contract was entered into, as it states, and is manifest in itself, because the public service demanded. There were two modes in which the government might have executed its views: the first, to purchase the steam boats, &c. equip them, and conduct them by hired agents: the second, to hire the steam boats, &c. and to have the whole service performed under such a contract as has been made with Col. Johnson. If the first mode had been preferred, the expense would have been enormous. In any mode it would not fail to be very great, but the mode actually adopted must necessarily be the least onerous—it was, therefore, wisely preferred. But still the person, by whom this new and hazardous service was undertaken, is entitled to be liberally dealt with in the adjustment of his compensation. The contract does not fix it, because it could not; it intimates only some general rules by which arbitrators might subsequently be enabled to ascertain it; and it inculcates upon those arbitrators the propriety of keeping in view substantial *equity* in the application of those rules to the various details of the subject.

The undertaking on the part of Mr. Johnson was, in every light, chargeable and perilous. Two steam boats were immediately to be obtained, victualled, manned, &c. at great cost; others were to be in readiness upon short warning. The *steam boats*, when obtained and tried, might be found to be unapt for such an enterprise in its full extent. *Keel boats* might, in consequence, be called for, and must be furnished. The boats were to be employed in distant waters, of which the capacity and natural obstacles were wholly unknown. They might be greatly injured, or soon destroyed; they might become useless, (after being injured,) by being found, on experiment, to

be unsuited to the waters which they were to explore. Other boats might be required, and new and indefinite expenses demanded in obtaining them; and these, too, might suffer or perish. Such discouragements were formidable; and he who has, notwithstanding, embarked in this enterprise, without specific stipulations as to his indemnity and reward, relying upon the justice of the government, or of arbitrators to be chosen in pursuance of his contract, will have reason to complain, as I think, if any thing like rigor or *summum jus* shall characterize the decision upon his claim.

The points to which the attention of the arbitrators must principally be called, are,

First. *The ordinary rates of transportation* at the date of the contract. I say *at the date of the contract*, because the parties could look to no other epoch, and because no other is mentioned. No contractor can be supposed to intend to run the risk, in a case like the present, of a fall in the rates of transportation, which competition, and a thousand other circumstances, might and unavoidably would produce, while his contract was in a course of execution.

He incurs the vast expenses incident to his preparations and progress, with a knowledge of the *existing rates*, and is induced by that knowledge to engage. He knows that those rates may and will be lessened; how much he cannot foresee; and if he consents to subject his compensation to diminution on that account, he speculates with a certainty of loss, and without any chance of advantage. Nay, he consents to make his own enterprise the means of disparaging his reward, since that very enterprise could scarcely fail to stimulate others, as it advanced, to similar exertions.

If the contract had fixed (as it might have done) the ordinary rates of transportation, it must have taken the *rates of the day*. It did not fix them, because there would have been difficulty in doing so; but, as it speaks of the ordinary rates, *without referring to the future*, the rates, *at the time of the agreement*, must be taken to have been as much in its view as if it had ascertained them expressly and in detail. This appears to me to be unquestionable.

2dly. The *hazard* attending the navigation of the waters through which the expeditions were to pass. And here the subject should be viewed as it presented itself to the contracting parties. The dangers of that navigation were unknown. They were believed to be considerable, and each of the parties contracts in that belief. The preparations are proportioned to the estimated trials and perils. The difficulty of obtaining a contractor of ability to perform his contract is enhanced by that estimate. That contractor looks to have his reward proportioned to the anticipated hazards which he weighs and determines to encounter. The other party makes the same calculations, and it is impossible to arrive at an equitable conclusion upon the amount of the remuneration, if this meritorious consideration be excluded. The contract forbids the exclusion of it, and expressly names it as a *basis*.

On this part of the case the arbitrators will doubtless do ample justice, as the terms of the contract indeed invite them to do. They will not fail to recollect the great value of the boats, &c. exposed to the hazards alluded to, and the ruin of the contractor which would follow their loss; a loss for which the government would have given him no adequate compensation, if it would have given him any.

3dly. The *further* allowance for *detention*, arising from any other cause than that of the contractor's negligence, with regard to his portion of the contract.

This part of the agreement is perfectly explicit, and the arbitrators are to act upon it according to *justice and equity*. It provides for every detention whatever, with the single exception of a detention imputable to the contractor's negligence. It specifies certain cases of detention, and then adds "*or otherwise;*" and then adds again "and not imputable to the negligence of the said James Johnson." The negligence alluded to is, of course, confined to *this contract*. If there be neglect as to any other contract, Mr. Johnson is answerable for it under *that* contract, and cannot be made doubly responsible.

4thly. To the claim of Mr. Johnson, with a view to transportation given to others, when he was in no default.

This contract secures to him the benefit of the transportation, to which it applies, because it obliges him to be ready to effect such transportation, either by the steam boats provided, or by keel boats, on notice. To take from him any portion of that transportation, (he being in no default) is a breach of this contract, and Mr. Johnson is entitled to be compensated for it. He ought, with regard to such transportation, to be placed exactly in the same situation as if he had performed it. I enter into no details; I suggest only what I think the rule.

WM. PINKNEY.

Washington, 15*th February*, 1820.

My dear sir: The foregoing is the general view which I take of the contract of which a copy has been put into my hands; and I recommend that Colonel Johnson's claim be modelled upon it. If you should desire any further explanations, be so good as to let me know, and I will give them to you with as much sincerity as I have given these, which I have given with perfect frankness.

Yours truly,

WM. PINKNEY.

Hon. Mr. Johnson, *of the Senate.*

No. 5.

Mr. Clay's argument in the case of Colonel James Johnson, submitted to the arbitrators appointed to decide the difference between him and the Quartermaster General.

The government of the United States determined to establish a military post at the mouth of the Yellow Stone river, a tributary of the Missouri, to which it is united near two thousand miles from whence the latter precipitates itself into the Mississippi. This post was to constitute one of a line and a part of a system, which had for their object, the monopoly of the rich fur trade of the north west, the suppression of British influence on the numerous, formidable, and warlike Indian tribes who inhabit or hunt in those regions, and the communication of a just dread amongst them, of the power and resources of the United States.

Subordinate to these principal purposes of the Yellow Stone expedition, but by no means unimportant, it was further proposed by it to explore and ascertain the nature and capacities of the vast country which the Missouri waters, and particularly to determine if the benefits which the genius of Fulton has conferred upon our country and upon the world, in the improvement of navigation, could be realized on that great river.

The conception of this daring enterprise was grand, and worthy of the distingished individuals who preside over the Department of War, and the quartermaster's department, to whom the merit of it is believed to belong. To ensure its success required adequate means. Not measured out upon a calculating parsimony, but liberally supplied, on a scale proportioned to the magnitude of the undertaking. In providing these, that of transportation was most essential and prominent. It occurred to the quartermaster general, that the best arrangement on this subject which could be made, would be that which should combine individual interest, with that of the government; which, whilst it engaged the skill, the industry, the economy, and the vigilance of a private individual in the preparation of adequate vehicles of conveyance, and in their preservation during the untried and perilous voyage on which they were about to enter, would, at the same time, hold out to that individual a just and generous remuneration for his arduous services. The wisdom of such an arrangement cannot be questioned. It cannot be doubted by any one, of discernment and observation, that if the government had undertaken itself to provide at its own cost the requisite tonnage for the transportation of the expedition and its appendages, whilst the vessels themselves would probably have been less adapted to the purpose of their employment, they would have greatly and unnecessarily augmented the expenses of the enterprise, leaving, upon its termination, those vessels useless in the hands of government, or to be sacrificed in the market, to say nothing of the immense fall in their value, which has since taken place.

Having determined upon the plan of securing the requisite means of transportation, the next object of the quartermaster general was to fix upon a competent person to execute the part of it assigned to private exertion. The selection made was of colonel James Johnson of Kentucky; and that it was judiciously made is conclusively proven by the testimony taken in this case. General James Taylor, Messrs. Stackpole and Whiting, the hon. Richard C. Anderson, T. Quarles, William Brown, and David Trimble, and many other witnesses, concur in establishing, beyond the possibility of doubt, his high character for integrity, unwearied assiduity, combination and arrangement in executing the most extensive and arduous undertakings. Accordingly, on the 2d of December, 1818, the quartermaster general and colonel James Johnson entered into a written contract for the purpose indicated. By this contract he stipulates:

First. To furnish two *steam boats* calculated to navigate the Mississippi and its waters, and to place them subject to the orders of the quartermaster general by the first of March, 1819, for the transportation of provisions, &c. to the military posts on the said waters, viz. The mouth of St. Peter's, near the falls of St. Anthony, the mouth of the Yellow Stone on the Missouri, and Belle Point on the Arkansas, and all other posts, whether intermediate or beyond those enumerated.

Second. In case this mode of navigation should succeed, and it should be found, at any time, that the two steam boats should not be sufficient to place, at proper periods, and when the state of those waters shall admit of it, all the provisions, &c. *then*, on due and reasonable notice, to provide forthwith one other or more steam boats, as the case may require, to aid in the said transportation.

Third. If, upon experiment, it should be found that any difficulty exists as to the entire transportation of the provisions, &c. in this way, *then*, in a reasonable, time say thirty days, to provide a sufficient number of keel boats, and to transport the same by them.

On the part of the quartermaster general, it is stipulated:

First. To furnish a corporal's guard for the protection of each boat thus employed, and the property laden therein.

Second. And whereas it is difficult to fix the precise aud definite compensation or allowance to be made to the said James Johnson for the due and faithful performance on his part, &c.; and whereas *the public service requires that this arrangement should be made at this time*, it is agreed that he shall be allowed a reasonable compensation, taking into consideration the hazard attending the navigating of waters at points so distant and heretofore unexplored by such mode of navigation, and the ordinary rates of transportation as the basis for such allowance; and also such reasonable and further allowance as may be equitable and just, provided, that if, in the arrangements and operations of the government, the said steam boats should be detained in their destination from the want of concentration of the articles, &c. to be transported, or *otherwise*, and not imputable to the negligence of the said James Johnson.

3d. To make, from time to time, advances, &c.

4th. In case of disagreement between the parties, as to the allowance or compensation, &c. that the matter shall be settled by arbitration.

Such are the principal provisions of the contract. On the part of Col. Johnson, the undertaking was, in every view, chargeable and perilous. Two steam boats were immediately to be obtained, manned, victualled, &c. at great cost; one or more others were to be supplied on short warning. The steam boats, when obtained and tried, might be found to be unapt for such an enterprize, in its full extent. Keel boats might, in consequence, be called for, and must be furnished. The boats were to be employed on distant waters, of which it was impossible previously to estimate the capacity, and the natural obstacles, they being wholly unknown. They might be greatly injured, or even totally destroyed. They might become useless (after being injured) by being found, on experiment, to be unsuited to the waters which they were to explore. Other boats might be required, and new and indefinite expenses demanded in obtaining them; and these, too, might suffer or perish. Such discouragements were highly formidable. They would have appalled most men: they served only to stimulate Colonel Johnson. Determined faithfully to fulfil his part of the contract, and anticipating the possibility of the incompetency of the two steam boats to effect all the transportation desired, he resolved to place *four* at the command of the government, and accordingly despatched for St. Louis the Expedition, the Johnson, the Jefferson, and the Calhoun. Insinuations have been made against these boats, but they are repelled by the testimony which has been adduced. Major Stackpole and R. Whiting, men experienced both in building and navigating steam boats, who have owned or been concerned in many, prove the Johnson and Expedition to be excellent boats. Major O'Fallon believed the Expedition to be the finest steam boat he ever saw; recommended Col. Johnson to purchase her: saw her tow the Independence up and over the rapids of the Ohio at Louisville. The Johnson returned from New Orleans in twenty-five days, whilst he was at Louisville, which was the quickest voyage that had been then ever made by a steam boat.

Christopher Crow testifies that he was steersman when the Johnson made the run from New Orleans to Louisville in twenty-five days, and that there was afterwards added one third more power to her engine. Wm. D. Hubble declares that the Expedition, Johnson, and Jefferson, are all good, substantial steam boats, not exceeded by any on the western waters; and Andrew and Berrywick Johnson concur in the same statement.

The stipulation in the contract is, that the steam boats to be furnished should be calculated to navigate the Mississippi and its waters. It supposed great difficulties might occur in the navigation of the Missouri; it supposed that they might be even insurmountable; it looked to the possibility of only partial success. Could the contractor manifest a more earnest and anxious desire faithfully to fulfil his un-

dertaking than by placing at the command of the quartermaster general the well tried and best reputed boats on that very Mississippi, and one of its most important branches, for whose navigation they were to be calculated, and from their capacity to navigate which the hope might be justly indulged, especially after the augmentation of their actual power, that they would stem the current of the Missouri.

If there be some opinions, (Col. Chambers's for example) unfavorable to the capacity of the steam boats, they will be found to be the result of slight and superficial observation, and entirely set aside by the great mass of contrary evidence, and by certain stubborn facts, which are well established. The testimony also evinces that a reasonable provision was made of keel boats by Colonel Johnson, and it cannot be doubted, from the whole tenor of it, that, if the notice which the contract stipulates for in his behalf had been given, and, if the government had not prematurely come into the market, in the employment of them, previous to any such notice, he would have been fully able to supply all the additional keel boats which the most comprehensive wants of the government could have required.

It may then be considered as fairly and faithfully shewn, that, at the mouth of the Missouri, the point from which the expedition to the Yellow Stone was to set out, and long before the expedition was prepared to move, long before the arrival of Col. Atkinson and his regiment, James Johnson had made a provision for transportation, amply commensurate with the magnitude of the undertaking, and exhibiting a most ardent zeal for the public service, and for the discharge of his duty; and that he had not only complied with the spirit of his contract, but he had even gone beyond it, by duplicating the number of steam boats.

The point whence the expedition was to move, unfortunately was that where those difficulties began which the contract itself anticipated as possible; and which, producing certain differences of opinion between the parties to the contract, have occasioned the present arbitration. It is understood by James Johnson that the arbitrators are to decide upon all his charges not allowed but contested by the quartermaster's department, so far as they respect the detention of his steam boats; the price of transportation which he actually made, or was entitled to make, by the terms of his contract; detention on the Missouri after the commencement of the voyage; and other demands growing out of the movement up the Missouri; but that the arbitrators have nothing to decide as respects the fulfilment or non-fulfilment of the contract in regard to the Mississippi. The several items of Colonel Johnson's demand will then be examined, beginning with that which grows out of the detention of the steam boats, &c. at the mouth of the Missouri.

First. The detention there was not owing to the incapacity of the steam boats to proceed on the intended expedition. The steam boat Expedition arrived at St. Louis on the 12th May, and the Johnson on the 17th; (see John Harris', and other statements.) The Jefferson shortly after. The repairs, necessary to their immediate progress up

the Missouri, did not require a delay of more than forty-eight hours; (see Christopher Crow's and other statements.) The detention is not imputable to any fault of James Johnson. It proceeded from some, or all, of the following causes:

1st. A failure, on the part of Col. Chambers, and the officers of government, to afford the necessary co-operation in the inspection of the provisions.

2d. A demand that the pork, &c. should be resalted and repacked prior to their being sent up the Missouri.

3d. The non-arrival of Col. Atkinson and his regiment, and of General Jesup.

4th. To unavoidable delay, imputable to the culpable neglect of no one, incident to the operation.

1st. It might be contended that if, in strictness, James Johnson, who had entered into a contract for the delivery of a quantity of supplies near the mouth of the Missouri, had, in any particular, failed in that contract, he would be liable upon that contract, and that government could not avail itself of both his direct liability, and his indirect liability, by seeking to taint the contract for transportation with the effects of the breach of the other. But this point is waived, and let it be conceded that, if he is chargeable, justly, with a non-fulfilment of his contract for supplies, the consequences of the non-performance, as far as they are applicable, may be made to affect his other engagement. What then was the true nature of his engagement as to the delivery of provisions? His contract of the 25th November, 1818, requires that the articles delivered, pursuant to it, "shall be inspected, at the time of delivery, by the inspectors regularly appointed for the town of St. Louis; but, if there should be no inspectors, then the assistant commissary of subsistence, and the said James Johnson, will appoint some persons of known good character, and will qualify for that purpose, who is to be under oath; the said James Johnson to be liable for the expenses of inspection, and for all other expenses, until the articles are safely delivered at such store house as may be designated by the United States at the town of St. Louis." Now, in order to carry into effect this stipulation, the co-operation of both parties was necessary. Colonel Johnson arrives with the articles on board the steam boats; he notifies the highest officer of government, (Colonel Chambers,) of the fact. No warehouse is designated at St. Louis for their reception. He offers to deliver them at the public ware house at Belle Fontaine; but they will not be even so far received as to be considered under the protection of the government. It is asked, with the confident expectation that one answer only can be given, if Colonel Chambers ought not to have received the articles, subject to the consequences of a subsequent inspection? Or was Colonel Johnson to provide a warehouse for their inspection on shore, previous to their subsequent delivery at the public warehouse in the same neghborhood? Say that he was bound to provide such warehouse; then he offered that the inspection should take place on board the steam boats, prior to the delivery of the arti-

cles. The correspondence between him and Colonel Chambers, is boldly appealed to for the purpose of testifying an earnest and anxious solicitude, on the part of James Johnson, to do whatever was incumbent on him to fulfil his engagement, with respect to the delivery of provisions. On the other hand, it is believed that it equally proves that, either from diffidence in himself, a misconception of the true nature of the obligations of the contract, or from some other cause, Colonel Chambers did not manifest that cordial disposition to cooperate. which is required by the nature and spirit of all contracts in which there is concurrent action, if it be not enjoined by the strict letter of the law. The time of the arbitrators will not be abused by entering into a consideration of what would be here an useless episode, the affair which Colonel Johnson had with a certain bank at St. Louis, under color of an ex parte and unjust decision in which the civil authority was attempted to be made to operate on property in his possession, as it passed to that of the government. That decision is to undergo, as Colonel Johnson has been always willing and solicitous that it should undergo, an impartial examination, when both parties shall be fully and fairly heard; and he is ready cheerfully to submit himself to the final judgment of the tribunal making that examination.

2d. The statement of C. Crowe, and others, proves that that portion of the detention at the mouth of the Missouri, which related to the supplies, grew out of the demand of the officers of government that the provisions should be repacked and resalted. Were they entitled to make such demand? The stipulation of the contract is, that the articles to be delivered should be inspected, that is, examined, to ascertain if they were sound, and should be delivered in strong and secure barrels, &c. There is no stipulation that they should be repacked and resalted. It is an interpolation in the contract to require the performance of that service. The contract contemplated a delivery of certain articles at a specified place and time. They were to be delivered at that place and time in a sound state, of which inspection was to be the test, and the duty of the inspectors was to pronounce upon their actual condition. If sound, they were to be received; if unsound, rejected. James Johnson had nothing to do with the place of their consumption. The government might have sent them to New Orleans, as supplies for the squadron coasting on the shores of Venezuela, or in the Pacific, or to the Yellow Stone. If the government, from abundant caution, thought it desirable to fit the provisions, by any further preparation, for such a distant source, they alone ought to have sustained the expense incident to it; or should have required of the contractor, by an express stipulation in the contract, that, at the moment of the delivery of the articles, they should be repacked and resalted, to qualify them for sustaining the action of a tropical sun, or to preserve them sweet and sound for the long period which was to intervene prior to their consumption. As it was, there existed as much right to demand that the provisions should be put in barrels iron bound, or double cased. This preparation of repacking

and resalting was not one which, by established usage, could be considered as falling within the fair scope of the contract; and its utility at all is disproved by Crowe and Craig. The provision in the contract, that James Johnson shall bear the expense of inspection, and all other expenses until the articles are safely delivered at the designated warehouse, cannot be so construed as to devolve upon him the duty of repacking and resalting. *Ordinary* expenses alone were in the contemplation of the parties, such as drayage, cartage, &c. &c. Although James Johnson was not therefore bound to perform the labor, and incur the expense, of repacking and resalting, nevertheless, when it was positively insisted upon, he proceeded promptly to do it, manifesting in this, as in every other instance, for the success of the enterprise, a zeal, a patience, and indefatigable perseverance, which rarely characterize the conduct of any man. He trusted to the liberality and the justice of the department fairly to appreciate and justly to remunerate his services.

3d. Nearly one month (days) after the arrival of the steam boats elapsed, before colonel Atkinson and his regiment and General Jesup reached the place of rendezvous. It is not intended to suggest that this delay was intentional, nor that the slightest blame should be attached to either of those excellent officers, who no doubt were discharging their respective duties with the utmost good faith. But it cannot be questioned, that the delay in the movements of the expedition is attributable, in some degree, to this cause. Colonel Chambers frequently, in writing and by parole, professed his want of orders, or his inability to give them; and the slightest knowledge of human nature must suggest the reflection, that no inferior officer can control and direct the movement of any great expedition with the same success and confidence as the officer who is charged with its particular command.

4th. Nor is it to be doubted that much of the detention which occurred at the mouth of the Missouri was unavoidable, the necessary incident of the movement of so many men, and such a mass of effects—a pause which implies the neglect of no one, or which might possibly proceed from the united neglect of a number amongst whom it would be impracticable to assign to every one his distributive share, but the undivided effect of which it would be the height of injustice to concentrate upon James Johnson.

The contract then providing, that James Johnson should have such reasonable and further allowance as may be *equitable* and just for *all* such detention of the boats as shall not be imputable to his negligence, and it being believed to have been fully shown, that the detention at the mouth of the Missouri was not so imputable to him, the demand of compensation for that detention is thought to be clearly supported. Whatever may have been the cause of the detention, whether necessary or *unnecessary* to the interests of the expedition, he is entitled to be paid for it, *if it be not imputable to his neglect.* The measure of his allowance is to be such as justice and equity suggest. None can be more conformable to the rule which

they would prescribe than that which is furnished by what the steam boats could have earned, if, instead of being detained, they had been actually in service on their great theatre, between Louisville and New Orleans, or between St. Louis and New Orleans.

The testimony of Hubble and others, who were familiar with the subject, shows what would have been their earnings, if they had been so employed, and if the rates of freight had continued the same that they were at the date of the contract.

To colonel Johnson the charges upon the steam boats and the disbursements which he had to make, during the period of their detention at the mouth of the Missouri, were as burthensome as if they had been in actual motion. Nothing then can be more just and equitable, than that he should be remunerated, the cause of the detention not having been imputable to his negligence.

It may possibly be urged, that James Johnson was bound to have placed the steam boats under the quartermaster general by the first of March, and to have delivered the provisions at St. Louis by the twentieth of April. To which it is replied, that a breach of any contract to influence the rights of the parties must be material. If immaterial, if it has been attended with no prejudice to the party who complains of it, he cannot avail himself of it. Now, both the steam boats and the provisions were at the place of rendezvous long before the expedition was prepared to move; and their having been at that place earlier, far from being beneficial to the government, would have only had the effect of augmenting the just demand of James Johnson for that detention to which he was subjected, late as they did arrive. Further, if a party voluntarily accepts of the performance of a contract at a different time, or place, from that which it stipulates for, he waives all right resulting to him from the non-performance, and is precluded from taking advantage of it.

Second. The next demand of Colonel Johnson, which it is proposed to consider, is that of the rate of transportation, which he ought to be allowed to the Council Bluffs. That a large and liberal view of this part of the subject should be taken is quite clear. Here was a contract on the part of the government relating to a great expedition which the public service required, into a vast country, inhabited only by savages, and up a river of almost boundless length, the obstructions of whose navigation were unknown, and therefore impossible to be estimated, and an individual who risqued every thing in assuming the responsibility incident to his undertaking in that contract. It would be monstrous to apply any huckstering principles to such a contract.

There are some preliminary circumstances which ought to be fixed before we decide upon the rate of the compensation to which Colonel Johnson is entitled.

In the first place, it is conceived that the arbitrators ought to keep steadily in view the condition of the country and of steam boat navigation at the date of the contract. At that period prices of all kind had reached their maximum. Steam boats were in great demand.

The most liberal freights were given, (see the affidavits of Colonel Morrison, Piatt, and others.) Since that period, labor, the prices of all commodities, the value of steam boat property, and every thing, has depreciated at least fifty per cent. It would be most unjust to deduce a rate of allowance from the altered state of things now existing. It was under the former state of things that Colonel Johnson made all his principal disbursements. It was in reference to that, that the parties contracted. No other was, or could have been, in their contemplation. But this view of the matter, so just and reasonable in itself, is fortified and supported by the express terms of the contract. *A reasonable compensation for the service to be performed* is stipulated; and the basis of this compensation is declared to be, 1st, a consideration of the hazard attending the navigation of waters at points so distant and heretofore unexplored, &c. 2d. the ordinary rates of transportation &c. That a rigorous interpretation of the contract should not be given, with reference to the compensation, is certain. It was entered into as it states, and is manifest in itself, because the public service demanded it. There were two modes in which government might have executed its purposes. The first was to purchase the steam boats &c. equip them and conduct them by hired agents. The second to hire the steam boats &c. and to have the whole service performed under such a contract as has been made with Colonel Johnson. If the first mode had been preferred, the expense would have been enormous; in any mode the expense could not fail to be very great; but the mode actually adopted must necessarily be the least onerous. It was therefore wisely preferred. But still the person by whom this new and hazardous service was undertaken, is entitled to be liberally dealt with in the adjustment of his compensation. The contract does not fix it, because it could not. It intimates only some general rules by which arbitrators might subsequently be enabled to ascertain it; and it inculcates upon those the propriety of keeping in view substantial equity, in the application of those rules to the various details of the subject. All the witnesses who testify in regard to the Missouri river, (see the statements of Major Long and others,) concur in representing the difficulties of its navigation as very great. Sawyers, planters, rafts, sandbars, the excavation of the banks, and the constant shifting of the current, present formidable obstructions which would have appalled any one less indefatigable and persevering than Colonel Johnson. To these ordinary obstacles is to be added the extraordinary drought which prevailed throughout all the western country during the past summer, and reduced the Missouri river below what it had ever been known to have previously been. The contract expressly provides for these contingencies, and requires that, in arranging the compensation which is to be reasonable, "the hazard attending the navigating of waters at points so distant and heretofore unexplored *by such mode of navigation*," shall be taken into consideration.

In fixing on this compensation the contract further requires that the ordinary rates of transportation should be adverted to, as one of

the circumstances which were to guide the judgment. And it cannot be doubted, that the rate which existed cotemporaneous with the contract, was that alone to which the parties looked. No other is mentioned: no other could have been thought of. It was an *experiment*. The first essays are always the least successful. No contractor can be supposed to intend to run the risque in a case like the present, of a fall in the rates of transportation, which competition and a thousand other circumstances, might and unavoidably would produce, whilst his contract was in a course of execution.

He incurs the vast expenses incident to his preparations and progress, with a knowledge of the existing rates, and is induced by that knowledge to engage. He knows that those rates in process of time may and will be lessened; how much he cannot foresee; and if he consents to subject his compensation to a diminution on that account, he speculates with a certainty of loss, and without any chance of advantage. Nay, he consents to make his own enterprize the means of disparaging his reward; since that very enterprize could scarcely fail as it advanced to stimulate others to similar exertions, and to enable them to shun his difficulties. If the contract had fixed, as it might have done, the ordinary rates of transportation, it must have taken *the rates of the day*. It did not specifically fix them, because there would have been difficulty in doing so, and because other circumstances were to be considered.

The ordinary rates of transportation, &c. of the day must then, not only be considered as those which were in the contemplation of the parties, but they must be supposed likewise to refer to those rates which were charged in that specific mode of transportation by steam boats, upon the theatre (the Mississippi and its waters) which they had in view. In providing a compensation for steam boat navigation on the Missouri, which had been previously untried, and respecting which great hazard was anticipated, it cannot be for a moment imagined, that the parties intended to limit the allowance by a rate deduced from an entirely different mode of navigation which had been long tried, and the hazard incident to which admitted of probable estimate. Carrying along these general principles and considerations let the testimony of experienced and highly respectable men intimately conversant with the subject be examined. Colonel James Morrison has had great experience, both as a private adventurer and a public contractor, in the business of navigating the western waters, and in that of transportation. He thinks that less than twenty cents to the Council Bluffs would not be a fair compensation, and he would not even at that have taken the contract.

John H. Piatt has lived in the western country twenty-five years, eighteen of which he has been engaged in navigating the western waters, and has been ten times to New Orleans. No man could be better qualified to form an accurate judgment of the matter. He considers that no responsible person could undertake for less than three times the price of keel boat freight, which, estimating that to the Council Bluffs, (according to Major Hall and others, at from nine

to twelve cents) would give a rate of allowance not less than twenty-five cents.

Major John O'Fallon has been extensively concerned in transporting up the Missouri river as far as the Council Bluffs. Scarcely any price would have tempted him to accept the contract without a guarantee of the steam boats against all perils and damages, and then he would be afraid to undertake for twice the price of keel boat freight.

Major Uriel Sebree states the difficulties of the navigation of the Missouri to be very great. Of thirty or thirty-five keel boats, chartered by government last season, two were lost with their cargoes, and one sunk, which was afterwards raised. One of the former belonged to government, and one to Holderman. The latter belonged to James Johnson, and the cargo was preserved. Boats cannot be loaded as deeply to ascend that as the other rivers of the west; they must be better rigged, their crews doubled, and even, with these precautions, about one in ten is lost, or materially injured. Steam boats that will safely freight from 90 to 100 tons on the Ohio and Mississippi, will not carry more than 50 or 60 on the Missouri, and require double outfits in rigging, cables, anchors, cordage, &c.; additional stores, and nearly double crews; all which must necessarily tend to diminish their actual burthen, as well as greatly to augment their expense. There is more difficulty in procuring fuel, which occasions three or four hours detention every day, and they cannot move at all at night. Freight from New Orleans to Louisville, (independent of the descending voyage,) in steam boats, in 1818, was from 4½ to 6 cents per pound, and a trip up and down could be made in every fifty or sixty days. He thinks that less than from eighteen to twenty cents would not justify the undertaking from St. Louis to Council Bluffs.

William D. Hubble states that, in 1818, the price of freight in steam boats, from Louisville to New Orleans, was one cent down, and from four and a half to six up. A voyage both ways could be made in 60 days, including necessary detention. The Missouri cannot be ascended but with half the cargoes which can be carried up the Ohio and Mississippi. He has navigated both the Missouri and Mississippi in the Johnson, and thinks that she can go from Louisville to New Orleans, and return, as soon as she can go from St. Louis to Cow Island, carrying only in the latter voyage one half of the cargo in the former. It requires within five days the time to go from Cow Island to the Council Bluffs, that it does to reach Cow Island from St. Louis.

The obstacles on the Missouri are three or four times as great as on the Mississippi. The navigation of the Missouri requires an expense in repairs, hands, tackle, &c. at least double that of the Mississippi. At least $20,000 is requisite to fit out the steam boats, independent of an expense to each in hands, of $14,280; making an aggregate of $62,840, besides subsistence. The Johnson, in a voyage to and from New Orleans to Louisville, would clear $10,000, the Jefferson $20,000, and the Expedition $22,000, equal, in the whole, to

$52,000 every sixty days, at the prices of freight at the date of the contract. He believes that the duration of steam boats on the Missouri will not be half as great as on the other waters; and he thinks twenty cents a fair compensation from St. Louis to Council Bluffs.

The statement of Hubble is corroborated and supported by that of Christopher Crowe, and those of Andrew and Berry Johnson.

The affidavits of John Cummins, Smith Calvert, Ichabod Randals, Willis Snell and John Harris, all concur in establishing from eighteen to twenty cents per pound as the just allowance for freight to the Council Bluffs.

General James Taylor, a man of great experience and respectability, enjoying the confidence of all who are acquainted with him, and personally known to the arbitrators, would not have engaged in the contract for twenty cents to the Council Bluffs.

From the whole mass of the testimony, the fact is believed to be conclusively and irresistibly made out, that a compensation of at least from eighteen to twenty cents to the Council Bluffs is just and proper. Some of the witnesses authorize a higher charge, and they are entitled to equal if not more weight, by the force of the circumstances which they adduce in support of their opinions, than those who fall short of twenty cents. It is therefore respectfully conceived that the arbitrators will feel themselves justified in allowing at least twenty cents to the Council Bluffs.

It will be contended, in opposition to this mass of evidence, that, in July and August last, the quartermaster's department did, in point of fact, contract for the transportation of provisions, &c. in keel boats, from Belle Fontaine to the Council Bluffs, at five and a half cents per pound; and that this ought to constitute the true standard of allowance to James Johnson. In the first place, the fact itself, in the sense in which it is alleged, is controverted. The truth is believed to be, that the contracts alluded to related to the capacity of the boats, and that they were paid for according to that capacity, and not to the *actual* amount of cargoes with which they were laden. John O'Fallon testifies that he was at the Council Bluffs when those boats, or some of them, arrived; that he particularly noticed only one of them; and that she appeared to be of about thirty tons burthen, and that she delivered less than twenty. Levi Craig proves that he heard Mr. Holderman (one of the contractors for those keel boats) declare he would not freight for government up the Missouri, unless he was paid for the full amount of the tonnage, and that he could not carry a full cargo. Andrew Johnson swears that he believes Holderman's boats were not more than half loaded; confidently believes they were employed by the tonnage, and not by the freight actually taken; and was informed by General Green that Holderman had stated to him that he was paid by the tonnage of his boats. Major Sebree's two letters, of the 31st August, 1819, and the 29th February, 1820, and Mr. M'Gunnegle's letter of the 14th August, 1819, tend to shew that Holderman's boats were but half loaded, and double manned. Major Hemstead heard both M'Gunnegle and Holderman say that the last

boats of Holderman which ascended the river were employed by the tonnage of the boats. But, to place the fact out of doubt, two of the contracts themselves are now produced (see them among the papers submitted to Congress) between M'Gunnegle and Holderman, and between M'Gunnegle and Walls, which incontestibly prove that they were to be paid according to the admeasurement of the boats.

If, therefore, the quartermaster's department paid five and a half cents per pound, according to the capacity of the boats, and those boats were only half loaded, the actual amount of disbursement was eleven cents per pound.

Whatever was paid, however, it is denied that it furnishes a just rule for determining the compensation equitably demandable by James Johnson; and it is respectfully conceived that the observations already made in support of this conclusion are unanswerable. To which it may be further added, that, in July and August last, prices of all kinds had fallen to their lowest rate; that James Johnson himself, by his engagements for government, had so satisfied the demand for transportation above St. Louis, as, by throwing keel boats out of employment, to have further reduced them; and that it would be most unjust to subject a contract made the previous year, when prices were at the opposite extreme, for transportation, by a different and untried mode of conveyance, to a measure such as that under consideration.

It will, no doubt, be urged that steam boats, by substituting the employment of artificial power for manual labor must necessarily reduce the price of transporting commodities. Such is their promise, and that is no doubt what they will ultimately effect. It may, however, happen that, in a first experiment, upon such a river as that of the Missouri, where it is impossible to estimate, a priori, the force of all the obstacles and embarrassments to be encountered, this promise will not be realized. When the nature of these difficulties can, by experience, be accurately calculated; when the quantum of propelling power to overcome such an impetuous current as that of the Missouri shall be correctly ascertained; when the best structure of steam boats adapted to navigate such a river shall be known; and when depots of wood, at suitable points on the margin of the river (a most important circumstance) shall be formed, steam boat navigation will very probably supplant that of keel boats, during such stages of the water as admit of their employment. In the mean time government is entitled to the lasting gratitude of posterity for having demonstrated the interesting fact that the Missouri is navigable by steam boats.

Great improvements are daily making in the Mississippi itself, in this wonderful species of transport, and there is abundant reason to conclude that, after all that has been done, that it is yet very far from having attained the perfection of which it will finally be found to be susceptible.

It is possible that it may be furthermore contended by the other side, that, since the steam boats were unable to reach their ultimate destination, the Council Bluffs, supposing the allowance of 20 cents

per pound to be made out as the just rate to that point, it ought to be applied pro rata itineris; and that a proportionate abatement should be made for the portion of the voyage which was not performed. That the whole of the voyage was not performed is not the fault of James Johnson. The non-performance of it proceeded from causes beyond his control. The stage of the water was such that he could make no further progress, and the prosecution of it was suspended by the order of the officer of government.

The testimony shews that, in ordinary seasons, and but for the unexampled low state of the river, the voyage might have been completed. James Johnson derived no benefit from its interruption; his expenses were the same, or nearly the same He had to retain the same crews in his service, to protect the boats, and to take advantage of the first rise of the river, as if they had not been arrested in their progress, and he must necessarily pay and subsist those crews.

Either of two further answers to this objection to the allowance of full freight, is supposed to be satisfactory. 1st. The detention at the mouth of the Missouri has been shewn to be not imputable to the fault or negligence of Johnson. If it had not occurred, the voyage might unquestionably have been completed. And, 2dly. The detention near Cow Island is most clearly not imputable to his negligence; and government, having assumed upon itself, by the express terms of the contract, the consequences of all detention, from whatever other cause it may have proceeded, it cannot be urged as a motive for the abatement from the claim for full freight. It is conceived that so much of the whole period of detention up the Missouri as, in navigable states of the river, would have been sufficient to complete the voyage, should be deducted, and the compensation for detention up the river to that extent reduced, in consideration of the admission of the charge for full freight. The testimony furnishes sufficient data for making an estimate of the time that would have been consumed in finishing the voyage, if the river had been navigable. But, at all events, the demand is unquestionably just, in the form, either of full freight, or compensation for detention; and it is, perhaps, not important in which shape it is admitted. The simplest mode is, however, believed to be the one which is here suggested.

Third. The next demand of James Johnson, to which the attention of the arbitrators is respectfully solicited, is that founded upon the stipulation of the contract which gave to him the monopoly of the transportation up the Missouri, from St. Louis. This was an important part of the contract to him; not merely as entitling him to the benefit of the whole profits of the business, but, in the event of any deficiency in the very ample provision which he made to fulfil faithfully his engagement, it secured to him the control of the price of keel boat freight, so far as it could be secured by keeping out all competition on the part of government. Hence, the contract is guarded and precise in this respect:—"And if, upon experiment, it shall be found that any difficulty should exist as to the entire transportation of the provisions and munitions

of war, and other articles aforesaid, in this way, then, and in this case, the said James Johnson shall, in a *reasonable time, say thirty days*, provide a sufficient number of keel boats, and transport the same by them." This positive covenant has been in no single instance conformed to by the officers of government, who have wholly disregarded it.

The testimony fully establishes—

1st. That transportation has been given to others without any demand upon James Johnson, such as the contract contemplated, to furnish the means of it. (See Andrew Johnson's and other statements.)

2d. That transportation has been given to others, when the boats of James Johnson were at hand ready to take it.

3d. That the boats of James Johnson have been sent off partially loaded, when, by abstaining from the unnecessary employment of others, and with the least spirit of accommodation, they might have been fully laden; thus subjecting him to all the expenses of full cargoes, with a remuneration only limited to their actual freight.

Even in the instance of the contract with Holderman, &c. (see it among the papers submitted to Congress) ten days' notification are required to enable them to place at the disposal of government the keel boats which might be wanted. James Johnson, although encompassed by difficulties and perplexities of all sorts, would have had it in his power to have supplied every keel boat required, if the same notice only had been accorded to him. But in one instance a day's notice was denied to him; (see the correspondence with McGunnegle, and Herndon's statement.)

There having been then, in this particular, a palpable breach of the contract, to the prejudice of James Johnson, he is entitled to demand a just indemnity, in nature of damages, of which there can be no measure more fitting than that which is furnished by the amount of what he would have received, if he had not been prevented by the act and conduct of the other side from executing his contract. He who is ready and willing to fulfil his contract, and is prevented from doing it by the party with whom he covenants, must, in law and reason, be considered as entitled to all the benefit of full performance. It will not be indulged to the other side to shelter himself under his own violation of the contract.

Fourth. The amount of compensation which ought to be made for the unavoidable detention of the steam boats up the Missouri river, constitutes the next item which will be noticed. This topic having been already several times touched, it is not necessary to dwell long upon it here. From the period of the final arrest of the steam boats in the course of their ascent of the river, on account of the insurmountable obstacles which presented themselves, of which low water was the principal, down to the present time, and probably to a yet later period, the property has remained, and may continue, totally useless to its proprietor. If it shall survive the dangers incident to its exposed situation, and especially that greatest of all, the immense masses of ice which the Missouri must discharge during this spring,

it will nevertheless have been subjected to a most burthensome expense in the subsistence and pay of the crew. One boat at least, it is to be greatly apprehended, will be absolutely lost; all may require extensive reparation. If the contract had been entirely silent on the subject of detention, it is possible that, in strict law, he would have had to bear all the losses which it would occasion; but even then his case would have come recommended to every liberal and generous feeling of government. But the contract is not silent. It was not fitting that, in a grand enterprise, of which the nation was to reap the fruits, and the enlightened projectors the renown, that a private individual should encounter all the losses and consequences of its total or partial failure It was an experiment. The public service required it. It might succeed beyond the hopes which it inspired; it might fall short of them; it might wholly disappoint them. All these contingencies could not but be anticipated by sensible men, and accordingly, the contract provides for "such reasonable and further allowance as may be equitable and just; provided, that if, in the arrangement and operations of the government, the said steam boats should be detained in their destination, from the want of concentration of the articles, &c. to be transported, or otherwise, and not imputable to the negligence of the said James Johnson."

There is not any color for imputation to him of negligence in this respect. Here then is a detention within the letter and spirit of the contract; and the contract declares that the allowance for it shall be both just and equitable.

If, therefore, the allowance is approved of full freight in the steam boats, upon a supposition that they had completed their voyage to the Council Bluffs, a deduction ought to be made from the whole period of their detention at the points where they were compelled finally to stop, of the estimated time which might have been necessary to enable them to consummate their voyage. And, for the residue of that period, a compensation is justly due, which shall be ascertained by the profits which could have been made if they had been actually employed on the Mississippi, in the same manner as is proposed in relation to their detention at the mouth of the Missouri. If, however, the demand of full freight shall be disallowed, and one pro rata itineris be alone admitted, then an allowance for the whole period of their detention up the Missouri, estimated in the mode suggested, it is confidently anticipated, will be sanctioned by the judgment of the arbitrators.

Fifth. The last demand with which it is intended to trouble the arbitrators, is that which arises out of the requisition which was made upon Col. Johnson to repack and resalt the provisions at the mouth of the Missouri. The grounds on which this item rests having been already fully examined, in considering the causes which produced the detention at the mouth of that river, it is not necessary here to add one word upon that subject. It is submitted to the decision of the arbitrators, in entire confidence that they will give a just interpretation to the contract for the delivery of supplies, and not extend it beyond its true import.

In finally submitting the case of Col. Johnson to the justice of the arbitrators, permission is asked to make one or two more observations. Considering the nature of the enterprize, the extent and variety of combinations and arrangements which he had to make, the surprize ought to be, not that it has not been completely successful in all its parts, but that so much has been done. Of the immense amount of valuable property indispensable to the security, comfort, and subsistence of the troops of the United States which was committed to his charge, it does not appear that one pound has been damaged or lost; whilst of the keel boats, the property of others which were taken into the service of the quartermaster, two with very valuable cargoes were entirely lost. No man ever encountered more difficulties than he did. Some of them were inseparable from the nature of his engagement, and, of these, therefore, he ought not to complain, and does not complain. Others, however, and of the most embarrassing and perplexing kind, were unnecessarily created. From his first arrival at Belle Fontaine, Col. Chambers, and other officers of government, manifested an indisposition towards cordial co-operation which might have proved fatal to the enterprize if the ardour of Col. Johnson could have been damped. Government had been liberal in its advances, but these had been consumed in the necessary disbursements incident to the outfit and preparations of the vast means which were required for such extensive transportation; and, at a moment when they were exhausted, and he had no other resource than that of his private credit, (it is with the most painful reluctance he is compelled to notice it,) that credit, at a distance from his home and his friends, was impaired by (he would willingly believe) the inadvertent act of Capt. McGunnegle, in disclosing the contents of an open letter addressed to him by Gen. Jesup, which stated that he had received $180,000 in advances. Why promulgate that fact at that particular point of time, and at that place? a place at which unfortunately there was a predisposition produced by the activity of a few personal enemies, to view his conduct in an unfavorable light? Whatever may have been the motive of its promulgation, (and he is far from insinuating a bad one,) it could not fail to have the most injurious effect upon all the operations in which it was necessary for him to employ that credit, his only remaining resource.

Amidst all the discouraging embarrassments with which he was surrounded, we behold him steady and cool and patient and persevering in the anxious endeavor to accomplish the object which had been entrusted to him. No neglect, no wrong, could thwart or shake him from his purpose. Is a charge brought against him of having taken an undue advantage of an officer of government in an arrangement respecting freight which was voluntarily entered into by both parties? He bears it without anger, though keenly feeling its injustice. Are fears suggested to him, at a critical moment, about his responsibility, and a demand made of a mortgage upon his steam boats? He instantly complies with it, and offers further security.

Throughout his whole conduct there has been exhibited a degree of good temper, forbearance, fortitude, and indefatigability, which has never been surpassed, and which would vindicate him even to his enemies. He has risked his life, he has impaired his health, he has exposed his fortune to ruin, and this in the service of an expedition which is to illustrate the present epoch. Does it comport with the justice and magnanimity of an enlightened and humane government to sacrifice such a man in such a cause? Great and grevious must be his loss in the depreciated value of his numerous transports, whatever liberality may mark the decision of the arbitrators. But, if his just demands are to be questioned, if a special pleading spirit is to be brought into the examination of his services, if his account is to be pared down with Jewish rigour, his ruin may be consummated. And what, if that be effected, will those high minded western people, who, as the President has truly remarked, have taken a deep interest in the military movements up the Missouri, and whose generous sympathy is excited in behalf of Col. Johnson, think, when the afflicting spectacle is presented to them of the total ruin of one of their most meritorious countrymen?

WASHINGTON, *March* 28, 1820.

MY DEAR COLONEL: I have looked over the papers relative to your brother's affair with government, (including the statements of McGunnegle and Hemstead,) and send you, herewith, such a view of the case as they appear to me to authorize. Its force is less strong than it would have been, owing to the incessant interruptions to which I have been exposed during the preparation of it. Such as it is, I shall be very glad if it will contribute, in any degree, to obtain for him that justice to which I think him fairly entitled.

With great regard,

I am, faithfully, yours,

H. CLAY.

Col. R. M. JOHNSON.

No. 6.

Letters of Colonel Atkinson, submitted in evidence on the part of the government.

ANALYSIS OF THE LETTERS OF COL. ATKINSON.

No. 1. *7th June*, 1819. Reports his arrival at St. Louis. The arrival of the steam boats with provisions; the delay of the Jefferson

with ordnance and ordnance stores. Speaks of detaching Colonel Chambers with the rifle regiment in public transports. His opinion of the practicability of navigating the Missouri with steam power. The arrival of the 6th regiment, with a detachment of the 5th, at St. Louis. Says it will occupy a fortnight inspecting the provisions, and that Colonel Johnson will not be ready earlier.

No. 2. *19th June*, 1819. The steam boats had not yet all arrived. The troops were ready to move. The full quantity of provisions which Colonel Johnson was to have furnished had not come to hand. In the event of a failure, the commissary would be required to purchase.

No. 3. *11th July*. Explains the causes of the delay in the departure of the expedition. Speaks of Col. Johnson's failure in supplying the provisions necessary to the movement. Departure of the expedition, and progress of the transports. Doubtful impressions as to the success of the Jefferson. Speaks of the aid received from the quartermaster's department, and regrets that the transportation was committed to other hands. A supply of provisions arrived after the sailing of the troops, but not enough. Proceeds in advance to provide transportation, if the steam boats fail.

No. 4. *July* 30. The steam boat Expedition arrived at Franklin; the other two 60 miles below. Very much retarded in his progress by accidents to the steam boats. Waits the arrival of the Johnson.

No. 5. *August* 13. Progress of the Expedition and Johnson steam boats, and the grounding of the Jefferson. Her failure, and the measures adopted in consequence. Does not apprehend a failure of the Expedition and Johnson. Should have discharged the Jefferson two or three weeks before if Colonel Johnson had not drawn heavy advances. Did not wish to interfere until her failure was certain. Has been particularly careful not to give Col. Johnson any clue for damages or detention. Gives the quantity of provisions which had been received, and represents how entirely the Colonel had failed on that part of his contract. Apprehends serious consequences from this failure.

No. 6. *August* 14. Speaks of the species of transports best calculated for Missouri, and says the transportation should never be taken out of the quartermaster's department. Presumes the failure of Colonel Johnson for this year will preclude him for the next. Apprehends a failure of the object in view, if dependant on such a source. Would not trust the man who once deceived him.

No. 7. *August* 25. The arrival of the troops at Fort Osage, and the steam boat Expedition. The cargo of the Jefferson is reshipped in keels.

No. 8. *September* 6. Arrived at Martin Cantonment. The cargo of the Expedition has been taken into keels. The Johnson will probably reach the Bluffs.

No. 9. The Johnson failed thirty miles above Fort Osage, and her cargo taken on board keels.

No. 10. *October* 19. Says the three steam boats all failed; one below Franklin, another near the mouth of the Kansas, and the third at Cantonment Martin.

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(1)

St. Louis, *June 7th*, 1819.

Sir: I have the honor to inform you that I arrived at this place on the morning of the 14th instant, in the steam boat St. Louis.

I accompanied the troops from Pittsburgh until we reached the distance of about twenty-five miles up the Mississippi above the mouth of the Ohio, when I left the transports and took passage in the steam boat, to facilitate my arrival for the purpose of forwarding the preparations for our ascent up the Missouri.

Two of Colonel Johnson's steam boats had arrived a few days before me, with provisions; and a third, the Jefferson, was lying 130 miles below, loaded with ordnance and ordnance stores. She had halted in consequence of a part of her machinery having given way. I understand she is nearly repaired, and is expected up in a day or two. The fourth boat, the Calhoun, is expected to arrive in four or five days.

It will probably take up a fortnight to finish inspecting the provisions intended for the supplies on the Missouri. So soon as this important business is over, I shall take my final departure for the upper Missouri.

In the course of three or four days I shall send off Colonel Chambars, with two hundred and seventy men of his regiment, from Belle Fontaine, in four of the transport boats which were brought from Pittsburg, to join the part of that regiment at Cantonment Martin, with instructions to be ready to ascend with my regiment on its arrival there with the steam boats.

The rifle regiment will be transported in keel boats, and my own in the four steam boats, attended by four keel boats. In accompanying the steam boats with four keel boats, I shall be able to afford the former every assistance they may need to facilitate and insure a speedy voyage. I have not the least doubt of the practicability of navigating the Missouri with steam power, notwithstanding the almost universal opinion to the contrary.

My regiment and the detachment of the 5th arrived this morning, and will probably reach Belle Fontaine to-day. The troops continue in good health, and no unfavorable accident has occurred on their passage, beyond the loss of two men on the Ohio.

I do not think that we can get off sooner than a fortnight. Colonel Johnson will, most probably, not be ready earlier. I think, however, notwithstanding the delay anticipated in the preparation of the

steam boats, that every thing promises the most favorable issue to the expedition. Yet it is impossible for me to say, before I reach the Council Bluffs, how much of the plan can be executed this season. So much as may be prudent you may rely on being done, having, at the same time, due regard to your instructions and views on the subject.

The steam boat under the care of Major Long is a short distance below, and will probably arrive to-day. I understand she gives every evidence of answering the purposes for which she is intended.

The detachment of the 5th regiment under Captain Pelham, is at Belle Fontaine. The part of it intended for the rifle regiment will be immediately transferred, and the remainder, with the detachment that accompanied my regiment, ordered up the Mississippi to join the 5th.

With very great respect, sir, I have the honor to be

Your most obedient servant.

H. ATKINSON,

Colonel 6th infantry.

Hon. J. C. CALHOUN,
Secretary of War.

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(2)

ST. LOUIS, *June* 19*th*, 1819.

SIR: I am sorry to inform you that Colonel Johnson's steam boats have not all arrived. The Jefferson came up last night, and brought our ordnance and ordnance stores. The Calhoun is still behind, and has not been heard of. I have determined, however, not to wait for her, and intend to proceed in six or seven days with the three steam boats, and four of our keels.

The troops are ready to move, but it will probably require several days to reload the steam boats.

The full quantity of provisions that Col. Johnson was to furnish, has not come to hand. All that has yet come is six months' supply for the 5th regiment (already sent up the river) and five months' salted meat; three months' flour; and a proportion of small rations, now ready for the upper Missouri. Colonel Johnson expects an ample supply daily; but, should he be disappointed, and the provisions not arrive by the time we are ready to move, I shall have six months' supply completed by the commissary, by purchases that can be made here on reasonable terms. Very large quantities of flour can be had at from seven to eight dollars per barrel. Indeed, I am well convinced that the troops may be supplied on the upper Missouri, on reasonable terms, should Col. Johnson not comply with his engagements, a circumstance that I do not apprehend.

I shall be better able to give you a decisive account respecting the manner in which we are to be supplied, beyond what is already received, in a few days.

I will close this communication by assuring you that I see no obstacle (although there are some that I did not anticipate) that will prevent my carrying your views of the expedition into good effect.

I shall certainly establish myself at the Council Bluffs this season, and very possibly carry the rifle regiment to the Mandan village; the latter, however, must depend on circumstances that cannot be foreseen. I shall not risk too much, nor will I leave any thing undone that I may think can be prudently accomplished.

The exploring steam boat is still here; Major Long, I understand, intends departing for the upper country to-morrow. All the assistance that he may want shall be promptly afforded.

I have the honor to be,

With great respect, Sir,

Your most obedient servant,

H. ATKINSON,

Colonel 6th Infantry.

The Hon. J. C. CALHOUN.

(3.)

ST. CHARLES, *July* 11*th*, 1819.

SIR: I have delayed writing for a few days, that I might be enabled to give such an account of our progress as would present a data, by which you could judge how much of the plan of the expedition can be effected this season.

In explanation of the delay that will seem to have taken place in the sailing of the troops from Belle Fontaine for the upper Missouri, I beg leave to state, that, after exerting myself for more than a month, I was not able till the 2d instant to get from Colonel Johnson, the contractor, a sufficient quantity of provisions to justify the movement, and then only five months' supply; and of that quantity about eight hundred barrels of flour were purchased in St. Louis a few days before, on my stating to Col. Johnson that, if it was not immediately furnished, I would order the purchase to be made on account of the United States. Vinegar, peas, and beans, are deficient in the above supply, and salt has been furnished by the commissary.

Immediately on the receipt of the provisions I ordered the troops (the 6th regiment) to embark, four companies in keel boats, and four on board the three steam boats. They sailed on the 4th and 5th inst. The keel boats make fine progress, and are probably some seventy or

eighty miles up the river by this time. Two of the steam boats went aground on the day they sailed, and were with much difficulty got off. They all reached this by the evening of the 8th instant. On the 9th the Johnson and Expedition proceeded on; the Jefferson followed the next day, and after going three miles came to, in consequence of having broken part of her machinery. The engineer is now repairing it, and she is expected to sail in the morning. I have strong hopes the two first vessels will succeed in reaching Cantonment Martin and the Council Bluffs, but I am doubtful of the success of the latter. Should either or all of the steam boats fail, arrangements are and will be made in the Quartermaster General's department to take up their cargoes in good season.

The delays have proceeded from causes beyond my control; but you may rest satisfied that I will establish myself at the Council Bluffs this season.

The most ample aid has been, on all occasions, given by the Quartermaster General's department, and I regret that any thing relating to transportation, connected with the expedition, has been delegated to other hands.

Col. Johnson has received large supplies of provisions since the troops sailed, but not enough, I am convinced, to fulfil his contracts. I have ordered the commissary to have it shipped as fast as it is inspected, and push it on after us. Should there be any deficiency in the quantity, I have no doubt the commissary will be able to meet it by purchases in the Boon's Lick settlements.

I have paid every attention to forwarding the ordnance, munitions of war, hospital stores, and clothing, for the Mississippi; all of which proceeded a few days ago, under charge of a detachment of the 5th regiment, which were at Belle Fontaine, and which I had detained for the purpose.

I proceed to-morrow on horse-back up the river, in order that I may be able more readily to supply any deficiency that may occur in transportation by the failure of any of the steam boats.

With very great respect, Sir,

I have the honor to be,

Your most obedient servant,

H. ATKINSON,

Col. 6th Infantry, com'g 9th Military Dep't.

Hon. J. C. CALHOUN,

Secretary of War.

P. S. A copy of this communication is transmitted to Maj. Gen. Jackson.

(4.)

FRANKLIN, M. T. *July* 30, 1819.

SIR: I have the honor to inform you that four companies of the 6th regiment, in keel boats, and a detachment of a company and a half, in the steam boat Expedition, arrived here on the 22d instant. The troops in the keels proceeded up the river after waiting a day to dry their baggage. The Expedition has been detained until this morning to repair her machinery; she will probably reach Martin Cantonment in twelve days. The other two steam boats were sixty miles below this two days ago; it is possible they may be up tomorrow.

We have been very much retarded in our progress, by accidents happening to the steam boats; and it is somewhat doubtful whether we shall be able to get them up finally. Should they however fail, the keels which are behind with the residue of our provisions will warrant a supply both of rations and transportation, to ensure our making the Council Bluffs in good season. We have received from Col. Johnson nearly the quantity of provisions which I required for the use of the troops for the present year; a statement of which shall be forwarded as soon as one is received from the commissary.

The last of the supplies were shipped and put under way after us on the 22d inst.

I wait only for the steam boat Johnson, when I shall set out to join the troops above. Permit me to repeat that you may confidently rely on my establishing myself at the Council Bluffs this season.

I have the honor to be,
With high respect, sir,
Your obedient servant,
H. ATKINSON,
Colonel 6th Infantry, Comd'g 9th Military Dep't.

HON. J. C. CALHOUN,
Secretary of War.

(5.)

FRANKLIN, *August* 13*th*, 1819.

SIR: I had the honor, on the 30th ultimo, to advise you of the situation of the troops destined for the Upper Missouri, and of the transport vessels attached to the expedition. Col. Chambers is now with a detachment of his regiment and four companies of the 6th regiment at Fort Osage. The steam boat Expedition, with a company and a half, was progressing, three days ago, about fifty miles below Fort Osage. The Johnson, with a company, was also progressing, forty-

five miles above this place, the day before yesterday. I was advised by express two days ago that the Jefferson, with a company and a half on board, was aground forty miles below. The captain of the boat had notified the commanding officer of the troops on board that he could proceed no further. Agreeably to special instructions left the commanding officer of the detachment, an express was sent by him early on the day of the failure of the boat, to St. Louis, for keel boats, to receive her cargo. The express would reach there in two days, and as the assistant deputy quartermaster general was ordered to hold keel boats in readiness to meet any failure of the steam boats, they will no doubt be under way in two or three days. A keel boat was sent to the Jefferson from this place yesterday to receive from her such articles as may be wanted above for immediate use.

Four keel boats with more than eight hundred barrels of provisions and the clothing of both regiments must by this time be at or near Fort Osage. On their arrival Col. Chambers will proceed with the troops at that place for Cantonment Martin.

Having arranged every thing necessary to ensure the arrival of the Jefferson's cargo at an early day above, I shall set out to day to join the Johnson at Fort Osage, and from thence proceed in her to the Cantonment above.

Should the Expedition and Johnson both fail, an occurrence I do not much apprehend, my arrangements will enable me to get their cargoes taken up in good season.

I expect to move from Martin Cantonment for the Council Bluffs by the 10th September, and, as the distance is only two hundred and fifty miles, we ought to expect to make it by the first of October, a day early enough to commence hutting for the winter.

The tardiness of the Jefferson would have authorized me to have discharged her two or three weeks ago, which would have been so much time saved. But, knowing as I did that Col. Johnson had drawn largely on account of transportation, I thought it most prudent as I had yet time on my hands to wait till a failure was acknowledged on the part of the boat, that he might not have the slightest reason to say that any interference on the part of the commanding officer of the expedition caused to him a loss. Indeed I have been particularly careful to avoid giving the smallest clue by which he could claim indemnity from government for losses which he must certainly sustain in his contract for transportation.

When I wrote on the 30th ultimo, I was induced to believe, from information received from the commissary at St. Louis, that Col. Johnson had nearly finished to complete the 400,000 rations which I required for the troops on this river. But, from a recent letter received from the same officer, there is a deficiency. The quantity received is 356,600 rations of meat, 324,648 do of flour, 5,550 do of corn meal, 5,836 gallons of whiskey, 6,664 pounds of candles, and 9,083 pounds of soap. From this statement, sir, you may see how entirely Col. Johnson has failed in this part of his contract.

When I left St. Louis he had not sent more than 100,000 rations up the Mississippi. I much fear his failure in that quarter will be greater in proportion than it is in this.

With great respect, Sir,
I have the honor to be,
Your obedient servant,
H. ATKINSON
Colonel 6th Infantry.

The Hon. JOHN C. CALHOUN,
Secretary of War.

(6.)

Chariton, August 14th, 1819.

SIR: In the several communications which I have had the honor to make to you, I have only adverted to the progress of the expedition up the Missouri. As the part of the plan of the expedition which is contemplated to be effected the next season will carry a part of the forces to a distant and remote point, I beg leave to suggest to you the propriety of directing that the supplies for the troops be ready for shipment at some point on the Missouri as early as the first day of March.

Provisions for the troops stationed in this section of the country have been heretofore drawn from Kentucky; but, as the meat part of the ration can be abundantly and cheaply supplied in the neighborhood of Franklin and this place, it will be certainly preferable to have the necessary supply engaged in these places. If the commissary was instructed to purchase, fine pork could be had at three and a half dollars per hundred, and beef at about the same price, and as the country abounds in salt, it might be barrelled up at a small expence. If it should be thought more adviseable to purchase it in a cured state, a sufficient quantity can be engaged at twelve dollars per barrel; bread stuff can also be procured in the same section of country, but probably not altogether of flour; kiln dried corn meal can be obtained to any extent which might probably answer a good purpose. The advantages arising from the purchases being made in this part of the country would be two-fold. The saving of transportation from Kentucky and the advanced position of the provisions towards their ultimate point of destination, thereby ensuring their early movement up the river.

With respect to the proper mode of transportation up the Missouri, (which ought never to be taken out of the hands of the quartermaster general's department,) I have no hesitation in saying that

keel boats are preferable to any other. Their progress, although slow, can be calculated upon with certainty. Their average distance per day may be estimated at fifteen miles; hence, if they were to commence their voyage as early as the first of March, it would be reasonable to calculate on their reaching the Mandan village by the middle of July, allowing twenty-five or thirty days for casualties and other delays.

The failure of Colonel Johnson to fulfil his contract for supplies this year, I presume will preclude his being depended upon to furnish for the next. Indeed I should feel apprehensive of not being able to accomplish the object which you have in view, were I made to depend on such a source. In making this observation I do not wish to be understood as impeaching the integrity of Colonel Johnson, but I deem it a sound maxim not to trust the man who has once disappointed you.

I shall proceed to day to Fort Osage to join the Johnson, from whence I shall take passage in her for Martin Cantonment, and calculate on reaching the Council Bluffs by the first of October. After establishing the troops at that, or some eligible place in its vicinity, and arranging every thing necessary for their security and comfort, I shall return to St. Louis to superintend the arrangements for the next season.

With great respect,
I have the honor to be
Your most obedient servt.
H. ATKINSON.
Col. 6th Infantry.

Hon. J. C. CALHOUN,
Secretary of War.

(7.)

FORT OSAGE, *August* 25, 1819.

SIR: I have the honor to inform you that I arrived at this post on the 23d instant. The detachment of the rifle regiment and five companies of the 6th moved on the same day under the command of Col. Chambers in keel boats and the steam boat Expedition for Martin Cantonment.

I left the Johnson on the 22d at the Miami Bottom eighty miles below. As she had passed the great obstructions near the Grand river, she may be reasonably expected to reach this by to-morrow evening. I shall set out from this place the day after to-morrow to meet the troops, two days following, at Martin Cantonment, from whence we shall depart for the Council Bluffs, at farthest by the 8th or 10th

proximo, and our arrival there cannot be protracted longer than the end of the month. The cargo of the Jefferson is by this time reshipped in keels, and will, agreeably to instructions, follow on, escorted by a detachment of the 6th regiment under Captain Bliss.

From information obtained here, and from traders from above, I have every reason to believe that the several Indian tribes in this section of the country will continue in friendly and peaceable terms with the United States. Hostilities however still exist among themselves. Indeed there is scarcely a tribe but what is at war with some one or more tribes. These wars consist of excursions made by small parties of one nation against another, and amount to the loss of but few lives and the stealing of a few horses,

With very great respect, Sir,
I have the honor to be,
Your obedient servant,
H. ATKINSON,
Colonel 6th Infantry.

The Hon. JOHN C. CALHOUN,
Secretary of War.

(8.)

MARTIN CANTONMENT, *September* 6, 1819.

SIR: I have the honor to inform you that I arrived at this post on the 31st ultimo. The detachment of riflemen under Col Chambers and five companies of the 6th regiment got up two days previous, accompanied by the steam boat Expedition.

The steam boat Johnson is yet behind, but may be expected up in a day or two. The steam boat Expedition has halted here, it being deemed impracticable, in consequence of the lowness of the river, to get her to the Council Bluffs. The Johnson will probably be able to reach that point, as her draught of water is much lighter. The cargo of the Expedition has been reshipped in our transport boats and a keel employed by Col. Johnson's agent, and, should the Johnson fail, I have ample means within my control to have her cargo taken up in good season.

The rifle regiment and the five companies of the 6th embark to day at one o'clock for the Council Bluffs. We shall, no doubt, make the march in twenty days.

The infantry which were on board the steam boat Jefferson are charged with the safe conduct of the keels that received her cargo, and may be expected to join us above by the 15th proximo; those on board the Johnson will be up sooner; therefore, it may be safely calculated, that the principal part of the troops will be established at the Council Bluffs by the first of October, and the residue by the 20th, toge-

ther with all our ordnance, munitions, and provisions for twelve months.

I take the liberty of enclosing a communication from Major Biddle respecting the conduct of a party of the Pawnee tribe of Indians towards himself and party whilst on a tour through the Kansas country. In consequence of the transaction I have requested Major O. Fallon, Indian agent, to inhibit all trade with the tribe till proper restitution is made, which I have no doubt will be promptly done.

With great respect, Sir,

I have the honor to be, &c.

H. ATKINSON,
Colonel 6th infantry.

Hon. J. C. CALHOUN,
Secretary of War.

P. S. Our delays must be attributed to the tardy movements of the steam boats above.

(9.)

CAMP MISSOURI, NEAR THE COUNCIL BLUFFS,
October 3d, 1819.

SIR: I avail myself of the earliest opportunity to inform you of my arrival with the rifle regiment and five and a half companies of the sixth at a point a few miles below this, early on the morning of the 29th ult. where we remained till yesterday morning to examine the neighbouring country for the purpose of selecting a position to canton the troops. Having fixed on this place, (an extensive rich bottom, covered with suitable timber for huts, situate a mile above the Council Bluffs) we reached it yesterday evening. To-morrow we shall commence hutting and probably cover ourselves in five weeks.

Light company A and part of B had left the steam boat Jefferson in keels, and were on the 7th ult. eighty miles below fort Osage. They may be expected to reach this by the 20th instant, together with the cargo of the Jefferson escorted by captain Bliss's command. Battalion company H is also behind. It was on board of the Johnson, which broke part of her machinery thirty miles above fort Osage. Keel boats were discharged from here some days ago and sent down to her; therefore the cargo and the company will no doubt be up in all this month.

As the means of conveying this letter is somewhat precarious, I will defer giving a detailed account till some few days hence, when I expect a light boat will return to St. Louis.

With the highest consideration and respect, &c.

H. ATKINSON,
Col. 6th. Inf.

Hon. J. C. CALHOUN,
Secretary of War.

(10.)

CAMP MISSOURI,
October 19*th*, 1819.

SIR: I have the honor to acknowledge the receipt of your communication of the 18th August. It gives me great satisfaction to learn that my movements up to the 11th July have met your approbation; since then many difficulties have occurred. The three steam boats, as you have been already informed, all failed. One below Franklin, another near the mouth of the Kansas river in the wilderness, and the third at cantonment Martin. These difficulties have been all surmounted. One of the keel boats with troops and provisions from the Jefferson reached here on the 12th inst., another is near at hand, a third may be expected in four days and the fourth about the same time. The Expedition's cargo has been brought up, and the boats sent to the Johnson for hers should arrive by the end of the month, by which time I have but little doubt, from the information given by captain Bliss, who lately came up in a keel from the Jefferson, that all the boats with supplies will reach here, with the exception of one that left Belle Fontaine on the 15th of September, freighted with flour, vinegar, &c.

If the provisions which have been shipped reach us in safety, of which there is but little doubt, we shall have a sufficient supply of flour and most of the small parts of the ration. To provide against a deficiency of meat, an article the contractor fell far short in, I caused beef cattle to be contracted for and driven to this place. Upwards of two hundred head have arrived, which will make our supply ample.

Among all the occurrences, connected with the expedition, none is to be so much regretted as the foundering of one of the keel boats freighted from the cargo of the Jefferson. I had sent this boat very early to the Jefferson to take from her such articles of the quartermaster's and ordnance stores as we should most want in making our first establishment. She progressed but slowly, and near the mouth of the Platte, some ten days ago, whilst running under easy sail, in the middle of the river, struck unfortunately on a snag, which was concealed under water; it passed through her bow and she immediately filled and sunk, in twelve feet water. No lives were lost. Her crew abandoned her two days after. Lieutenant Keeler, acting ordnance officer, who I had ordered to come up in the boat, to add security to her freight, hastened to this post to give information of her fate. I immediately ordered one of our large keels, under his charge, well supplied with spare anchors, cables, &c. and a strong crew of soldiers, to descend for the purpose of endeavouring to raise the sunken boat. If that should be found impracticable, to try and save from her as many of the articles as possible. I am in hopes that much of the property, and probably the whole, may yet be rescued. A list of the articles comprising the cargo is herewith enclosed.

It gives me great satisfaction to inform you, that the greatest har-

mony and friendship has been established between ourselves and the several Indian tribes in this part of the country. The agent, major O'Fallon, has been zealous in his duties and exhibited much talent in executing them.

Councils have been held with the tribes of the Kansas, Ottos, Missouris, Iaways, Grand Pawnees, Pawnee Loups, Pawnee Republics, and Mahas. I attended the councils held with the four last tribes and invited the chiefs to visit and eat with us. They attended, and were shown the effect of our cannon, and otherwise impressed with our strength. To each I presented a common sabre, as a token of friendship, which were, I think, received in the same spirit they were given. Indeed no means has been withheld to impress the Indians with the friendly disposition of government, as well as its justice and its power to enforce it if necessary. The Pawnee Republics have returned the horses and other articles taken by one of their war parties from major Biddle and his party, and have solemnly pledged themselves to punish the offenders.

We have progressed with our barracks as high as the roofs, which which will soon be put on. Boards for covering, floors, &c. are in a state of forwardness, and I think every thing promises fair to warrant a belief, that the troops will be comfortably quartered in all next month. The barracks are laid out, as well for defence, as for accommodation. They form a square, each curtain presenting a front of 520 feet, made of heavy logs and the walls about sixteen feet high and the whole of the roofs sloping to the interior. In the centre of each curtain there is a projection of twenty feet, its width twenty with a heavy ten foot gate in the front. These projections will be pierced with three embrasures for cannon, two raking the curtain each way from the centre, and the other through the gate to the front. The upper part of the projection will have a second floor and still project over the lower part to afford loops to fire down through. It will be raised to barbet height, and will answer for cannon and musketry. The barrack rooms, the exterior of which form the curtains, are 20 feet by 20 and will be pierced with loop holes for small arms. When completed, no force will be able to carry the work without the aid of cannon. As soon as the engineer, lieut. Talcott, arrives, who took passage in the Johnson, you shall be furnished with a plan of the work and a topographical survey of the ground, the river, and the adjacent country.

I am led to believe from Hardhart, an Indian chief, who has often traversed the country, that an excellent road may be made without little trouble, from hence on the north side of the river across to Chariton, and embrace only a distance of 180 to 200 miles. Deeming such a communication with the interior of the first importance on many accounts, I shall send an officer in the course of four or five days, with a party of some six or eight soldiers, to mark out a road by the nearest route over the country alluded to. The party will be supplied with pack-horses, and the Iaway chief, Hardhart, as a guide. The officer will take with him proper instruments and be instructed

to make a topographical sketch of the country. As soon as the road is marked out, the route will afford an easy communication between this post and the post office at Chariton, which may be kept up once a month, and oftener if necessary, by expresses, and which will be put in practice.

Much other matter of importance relative to the country, and connected with your views on the subject of the expedition, presents itself, but as I am greatly occupied by daily occurrences, I must beg leave to defer entering upon, till I have time to digest and arrange the several points.

As soon as the troops and boats containing provisions below arrive, I shall set out on my return to St. Louis, for the purpose of attending to the arrangements necessary for the completion of the expedition next season, as well as to be better situated to receive your advice relative to it.

The troops, notwithstanding the excessive fatigue to which they have been subjected, enjoy excellent health, and all hands seem well disposed to do their duty.

If I have not done as much as you expected, I must look for an excuse in the many difficulties presented by the failure of the steam boats, and the want of an early compliance on the part of the contractor. Indeed if more could have been done with the means put in my hands, the fault should be attributed to want of ability in me to effect it, rather than unremitted exertions.

With great respect, Sir,

I have the honor to be

Your most obedient servant,

H. ATKINSON.
Col. 6th infantry.

Hon. J. C. CALHOUN,
Secretary of War, &c.

P. S. From my present knowledge of the Indian character, and from information of the country above, I have no doubt but your views relative to the expedition may be carried into full effect.

(No. 7.)

Documents submitted in evidence on the part of government.

No. 1. The letter of Colonel R. M. Johnson to the Secretary of War, dated 5th June, 1818, refers to the plans and propositions of his brother James Johnson, to obtain a contract for transportation on the Missouri &c. by steam boats. He says, "I have just perused a letter ad-

dressed to you by my brother James Johnson; some very interesting and grand ideas open to the mind upon the subject of his letter, and I feel great solicitude that his wishes may meet your approbation. It will at events make a fair experiment and reduce to certainty whether steam boats may be made subservient to military purposes upon those distant waters."

No. 2. The letter of Colonel R. M. Johnson addressed to the quartermaster general, dated 17th November, 1818. He says that the Secretary of War informed him that the quartermaster general had the control of the transportation of provisions, troops, baggage, munitions of war, &c. that the intention and nature of the military operations in the west would employ considerable means of transportation, and therefore he proposes to contract for the transportation of army supplies &c. on the Mississippi and Missouri rivers; says his brother James Johnson had built a steam boat for the purpose of navigating these rivers; and adds that his brother has two other steam boats which will be in readiness before the winter is over, one of which is particularly designed for the same waters. Offers security to the amount of 500,000 dollars for the faithful performance of any contract he may make with the quartermaster general.

No. 3. The letter of Colonel R. M. Johnson addressed to the quartermaster general, dated the 24th November, 1818, enclosing a rough draft of an article for a contract, and submits it for his adoption, and adds that, in a conversation with the Secretary of War this morning, "I presented him the memorandum, the substance of the enclosed, which was the result I told him, in my own mind, of the conversations and communications you and myself had had on the subject. He suggested several things which are now embraced; he requested me to place them before you as soon as convenient in writing, and to say to you that he wished the contract entered into with you, and that he would then consult with you and give his written sanction to it." Says his brother James will furnish such data as will give the probable amount of the expenses of transportation; and adds that it would be a matter of much difficulty at this time to be more definite as to allowance; urges its being left in the form proposed in the article he has presented, assuring that there would be no difficulty, as his brother only wished a fair and reasonable compensation. Names his brother's sureties, and says they are worth 500,000 dollars.

No. 4. The letter of Colonel James Johnson, dated 28th December, 1818, acknowledges the receipt of the contract made by his brother with the quartermaster general for transportation of provisions &c. to the Yellow Stone and St. Peter's. Has received orders from the Secretary of War to prepare 420,000 complete rations, which will be ready in thirty days. He has two steam boats preparing for the transportation, with skiffs, keel boats, &c.; thinks much good will result to the United States from the occupation of those posts.

No. 5. The letter of Colonel James Johnson, dated 12th February, 1819; advises of his preparations for the expedition up the Mississippi and Missouri; says he has nearly accomplished all his purchases,

that he will have the balance provided before the time of its departure. He says he has provided three steam boats which will be ready in March, and thinks another steam boat will be necessary. Says he can make a calculation as to the weight of the rations, because a certain number (420,000) is ordered to be deposited the 21st of March at head quarters, Belle Fontaine, but has no data to calculate the amount of munitions, baggage, &c. the weight is with me yet uncertain; it would help me considerably to know the probable weight of munitions, baggage, detachments, &c. says he has it in his power to provide another steam boat if wanted. He adds "I have not selected the largest steam boats. Prudence I thought dictated from something like from 100 to 150 tons burthen, as those rivers are untried with steam boat navigation. He says that in making his arrangements for the expedition, he shall employ over one hundred thousand dollars. Complains of the hard times and urges as liberal advances to be made to him by the quartermaster general as the nature of his official duties will admit, and says he has authorized his brother Colonel R. M. Johnson to receive any advance which may be made to him.

No. 6. The letter of Col. James Johnson, 13th February, 1819; says he has anticipated the wishes of the Secretary of War in relation to early movements, and has now nearly ready the whole quantity of the requisition for 420,000 complete rations, that early in March he shall have three steam boats ready for service.

No. 7. The letter of Col. James Johnson, 18th February, 1819; asks what will be the probable number of rations? What the weight of munitions, &c.? And what the number of troops destined for each river? Remarks that perhaps the last may be an improper question; says he is ordered to have 420,000 complete rations ready at Belle Fontaine by the twenty-first of March; presumes this quantity is intended for the two rivers. His contract he says requires him to have two steam boats ready; but, provided they are not sufficient, to have others on thirty days' notice. This would retard the movements (*i. e.* the notice,) desires that the size of the steam boats should be named; expresses his desire to fulfil the most sanguine expectations of the government. He presumes that it is wished the whole should go en masse compactly together; that it is as easy for him to prepare for such a state of things as any other, provided he knows in time; asks for liberal advances; says he inclines to think another steam boat will be necessary in order to accomplish the views and wishes of the department.

No. 8. The letter of Col. James Johnson, dated Mouth of the Missouri, 26th May, 1819; says he has been ready eight or ten days to proceed up the two rivers, but met with some difficulty at Belle Fontaine; and informs that he is ready at a moment's warning to proceed to the Council Bluffs or for the Yellow Stone.

No. 9. The letter of Col. James Johnson, 30th May, 1819; gives a statement of the tonnage of his steam boats, viz: The Expedition 125 tons; the Johnson 75 tons; the Calhoun 80 tons; the Jefferson 125

tons; and that each boat will accommodate as many men as their tonnage.

No. 10. The letter of Col. James Johnson, dated 7th June, 1819; says his business is going on well; that the Johnson's arrival (yesterday) would have removed the scruples of the most doubtful about the success in ascending the two rivers; that she run from St. Louis to that place, (mouth of Missouri,) twelve miles, in five hours and three minutes.

No. 11. The statement of Capt. James McGunnegle. He thinks the steam boats of Col. Johnson were not such as his contract called for; calculated and fitted for the successful navigation of the Mississippi and its waters, having frequently heard of and witnessed their want of steam power, and defects of their machinery. Each of the steam boats furnished by Col. Johnson, namely, the Expedition, Jefferson, and Johnson, have all evidenced a want of steam power to stem the current of the Missouri between its mouth and Belle Fontaine. That warps were resorted to, and that an evidence of the Jefferson's want of steam power, or defect of machinery, is exhibited by the unusual time occupied in performing her trip from Wheeling to St. Louis, about two months, when other steam boats performed such a trip in from fifteen to twenty days. That he examined the machinery of the Jefferson after she had progressed about twenty miles on the Missouri, and found it to be very defective. Capt. McGunnegle also proves that neither of Col. Johnson's steam boats were put at the disposal of the quartermaster general within the time named in his contract; that it was not until the 27th June, 1819, that the Expedition and Johnson were reported to be in readiness for sailing; that neither of Col. Johnson's steam boats were detained by the arrangements or operations of the quartermaster's department, but that they were detained by other causes exclusively connected with Col. Johnson's contracts with the subsistence and other departments of the government. He proves the rate of freight on the Missouri in the years 1817, 1818, 1819, to Fort Osage, to be three cents per pound, and during the year 1819, to be five and a half cents to the Council Bluffs, at which price Capt. O. Fallon transported public property, and was anxious to contract at the same price for the present year; and that Capt. O. Fallon is sutler to the rifle regiment, and is therefore interested in having the highest rates of freight established on the Missouri.

No. 12. The statement of Thomas Hemstead. He testifies in relation to the failure of Col. Johnson to comply with his contract with the subsistence department. The causes which produced delay to Col. Johnson's steam boats at St. Louis and Belle Fontaine. Proves, beyond a doubt, that their detention was not attributable to the quartermaster's department.

No. 13. The statement of Col. Chambers. He proves that Col. Johnson's steam boats were not such as his contract stipulated they should be; calculated and fitted for the navigation of the Mississippi and its waters, and details their defects; that their detention at the

mouth of Missouri was not produced by any arrangements or operations of the quartermaster's department; but, by a failure on the part of Col. Johnson to comply with his contract with the subsistence department, that neither of those boats were placed at the disposal of the quartermaster general within the time stipulated in his contract, and that Major O. Fallon is sutler to the rifle regiment, and that it is his interest to have the highest rate of freight established on the Missouri.

No. 14. The statement of Major Biddle. He says that he ascended the Missouri in the months of June and July, 1819, as far as Franklin, in the steam boat Western Engineer. He does not know in what her defects consisted, but is decidedly of opinion, that the Western Engineer is not calculated advantageously to navigate the Missouri river. That Col. Atkinson, in the month of September, 1819, at the Isle aux Vaches, decided that he would abandon steam boat navigation altogether; and the Expedition, the only boat that reached that point, was there left, and keel boats resorted to exclusively in moving the troops towards Council Bluffs; that the delay of Col. Johnson's boats Expedition and Johnson at the mouth of the Missouri was owing to the non-arrival of the Calhoun and Jefferson and the inspection of Col. Johnson's provisions on board of the first named boats. The steam boat Jefferson was detained some days near Cape Girardeau, waiting the arrival from Louisville of a new piston head to replace one that had been broken; and understood that the Calhoun could not stem the current of the Mississippi.

No. 15. The letter of Major John Hall. Speaks of the drafts of the Cols. Johnson. Pleads ignorance of the price of transportation on the Missouri. Has no knowledge of the contract between the government and Col. Johnson. And that he never ascended the Missouri more than five miles.

No. 16. The statement of Major John O. Fallon. Says he does not recollect any transportation above Fort Osage before 1819; that to that place in 1819, it was three dollars per hundred pounds, and he believes so continues. Gives his opinion of Col. Johnson's steam boats; recommended the purchase of one of them.

No. 17. The statement of Frederick Yeiger. He testifies that he was one of the mates on board the Jefferson. That his boat was pretty able to stem the current of the Missouri. Had one captain, two mates, engineer and a sufficient crew of sailors and five men. Says her machinery was frequently out of order. Specifies the forcing pump; and says that the engineer was careless and sometimes incompetent from intoxication.

No. 18. The statement of General James Taylor testifies that he is a stockholder in the Mechanics' Bank of Cincinnati, and that some years ago that Colonel Johnson and his associates, mostly his connections, obtained from the Farmers and Mechanics' Bank of Cincinnati, a considerable sum of money, at a certain per centage; that he has understood, from one or more of the directors of that bank, that Col. Johnson and his associates owed the bank about

$110,000. Says he has never seen the Missouri; can only speak of its navigation from information derived from common report; has seen but one of Col. Johnson's steam boats, that built at Wheeling; she appeared large.

No. 19. Ths statement of Col. James Morrison. He testifies that he was contractor till May, 1816; says that when he transported provisions from Louisville to St. Louis, on freight, he paid two cents per pound, exclusive of storage, drayage, &c.: speaks of freights generally from New Orleans to Louisville; the character of the navigation of the Mississippi and Missouri, relatively, and the comparative difficulties in navigating them by steam and keel boats.

No. 20 is the certificate of Peter Hagner, shewing that Maj. Sebree is the partner of Col. Johnson.

No. 21. The letter of Col. James Johnson, dated 5th July, 1819. Says "the quantity of provisions you want shall be purchased, provided there is not enough on arrival of that which I advised you."

No. 22. The letter of Col. James Johnson, dated 28th August, 1819, denies that Capt. McGunnegle was compelled to employ keel boats in consequence of his deficiency; offers additional security for the performance of his contract.

No. 23. The letter of Col. James Johnson. Speaks of his three steam boats; says they are at St. Charles in good order, and he doubts not will stem the current of the Missouri, and will succeed well. Says he had the mortification to see the Jefferson and Johnson get aground; the latter was got off with ease, the other required one day and two nights. Has not a doubt but they will do well if the channel is seven or eight feet deep.

No. 24. The statement of Capt. James McGunnegle. He speaks of the credit of Col. Johnson at St. Louis, and the public opinion there expressed in relation to it. Says that the quartermaster general declared, on his arrival at St. Louis, that he would not suffer Col. Johnson to transport a pound of public property if large advances had not been made to him; that he had totally failed in his contract for transportation, and that it was then absolutely necessary to employ him to secure the government as far as practicable. States the number and tonnage of the keel boats employed by the quartermaster's department to transport the cargo of the Jefferson. Does not consider Maj. Hall a competent judge of the navigation of the Missouri, or of the price of freights on that river. Says that no boats were thrown out of employ in 1819 in consequence of the arrangements of Col. Johnson; on the contrary, a number obtained employment on the Missouri and Mississippi in consequence of the Colonel's want of arrangement; that the profits to transporters on the Missouri in 1819 were greater than at a former period; proves this point by actual calculation. Speaks again of all the steam boats of Col. Johnson, pointedly as to their inefficiency.

No. 25. Col. Atkinson's answers to the questions put both by Col. Johnson and the quartermaster general; speaks of the arrival of the

provisions and their inspection; the movement of Col. Chambers; the number of men at Martin Cantonment in May; advises Col. J. of the readiness of the Expedition; its delay. The Expedition could not have moved without a larger supply of provisions than was ready on the 28th of June, nor without the ordnance and munitions; short supply of provisions; a purchase made as late as the 28th June. The Jefferson was not calculated for the navigation of the Missouri, nor had she a good crew. The Expedition and Johnson are good boats, but draw too much water. The causes of the Jefferson's delay and failure; also the delay of the Expedition and Johnson; tonnage of the several boats.

No. 26. Distance from St. Louis to the Council Bluffs.

No. 27. Testimony of George Colefax. Says the Jefferson was calculated for the navigation of the Missouri; speaks of the outfit of the several boats, and the causes of delay.

No. 28. Col. Gibson's answers. Speaks of Col. Johnson's contract for provisions; no provisions were delivered at the times required; requisitions made on Col. Johnson not yet fully complied with; purchases made in consequence of Col. Johnson's failure; the failures and delays have produced serious injury to the service; weight of a ration.

No. 29. Knox, Holderman, & Co's certificate of price of freight in 1818.

No. 30. James Kennerly's certificate of the price of freight in 1818.

No. 31. A table of Col. Johnson's demand, the amount proposed to allow him, and the ordinary rates of freight.

No. 32. The daily expense of a forty-four gun ship, in active service.

No. 33. Memoranda of the amount claimed by Col. Johnson; the amount proposed to be allowed, with the difference; and the amount lost in consequence of his employment.

No. 34. A letter from Captain McGunnegle, giving the price of freight.

No. 35. A letter from R. M. Johnson to the Secretary of War; speaks of the contracts for the supply of provisions, and its transportation; is willing they should be separated, but fears the consequences.

No. 36. Orders from the War Department in relation to the movement of the 6th regiment.

No. 37. Statement of the quantity of provisions delivered by Col. Johnson previous to the movement on the 5th July.

No. 38. Orders from the War Department for the Quartermaster General to proceed to St. Louis.

Documents referred to in the foregoing analysis.

(1.)

GREAT CROSSINGS, *June* 5, 1818.

SIR: I have just perused a letter addressed to you by my brother Col. James Johnson. Some very interesting and grand ideas open to the mind upon the subject of his letter, and I feel great solicitude that his wishes may meet your approbation. It will, at all events, make a fair experiment, and will reduce to certainty, whether steam boats may be made subservient to military purposes upon those distant waters.

With great respect,
Your obedient servant,
RICHARD M. JOHNSON.

The Hon. JOHN C. CALHOUN,
Secretary of War.

(2.)

HOUSE OF REPRESENTATIVES,
November 17, 1818.

SIR: Your promotion to the superintendence of that important branch of the War Department, the quartermaster's department, has given me great pleasure both on account of the personal regard I entertain for you, and the great benefits which must result to the public interest from your industry, talents, and experience, which, to say the least of them, are equal to any officer of your age in our service. I am informed, by the Secretary of War, that you have the control of the transportation of munitions of war, baggage, troops, provisions, &c. &c. from point to point as the service may require; and that the extension and nature of the military operations in the west would employ considerable means of transportation. In consequence of which, I am induced to state to you, that my brother Col. James Johnson has built a steam boat for the purpose of navigating the Mississippi, Missouri, &c. under the hope that the War Department would require the means of transportation, and that he should probably meet with employment in that way. He has two other steam boats which will be in readiness for navigation before the winter is over; and one of these particularly is designed for the same waters, provided he can receive employment.

The object of this letter is to call your early attention to this subject, and to let me know whether you can give the encouragement to this species of enterprize which has been hoped for; and, if so, to what extent, that my brother may make his arrangements accordingly,

as well as yourself. Permit me to say that my brother has proved himself a soldier, and, like yourself, has given some evidence of his devotion to the cause of his country; and I refer you particularly to Gen. Harrison for his claims upon his country consistent with public interest and duty. These boats have and will cost him considerable sums, and if the service requires the use of one or more he will be benefitted.

He will give you security to the amount of $500,000 as to the faithful performance of any contract he may make with you on this subject. I shall call and see you personally, and enter into details if necessary, which would be useless and tedious until it is ascertained that you will want such employment.

With sentiments of great respect and esteem,
Your obedient servant,
RICHARD M. JOHNSON.

COL. JESUP,
Quartermaster General.

(3.)

HOUSE OF REPRESENTATIVES,
November 21, 1818.

GENERAL: Finding such a perfect coincidence of sentiment between the Secretary of War and yourself, and anxious to give my brother as much time as possible to make his arrangements to meet your wishes, I put down this morning on paper the substance of the enclosed rough draft of an article to submit to your modification and alteration and adoption as you may deem important for the public service.

In a conversation with the Secretary of War this morning, on other subjects this was mentioned; and I then presented in memorandum the substance of the enclosed, which was the result, I told him, in my own mind, of the conversations and communications you and myself had held on the subject. He suggested several things which are now embraced; he requested me to place them before you, as soon as convenient, in writing; to say to you that he wished the contract entered into with you, and that he would then consult with you and give his written sanction to it. In the mean time my brother will furnish you with such data as will give the probable amount of the expenses of transportation. It would be a matter of much difficulty at this time to be more definite as to allowance, and my brother is not at all afraid to leave it in this form, as he is convinced there will be no difficulty, as he will only want a fair and reasonable compensation, and less than that you would not wish to give him.

He will offer William Ward, John T. Johnson, Joel Johnson, and Henry Johnson, his securities. I have a power of attorney, acknow-

ledged and executed in due form, to sign the name of my brother and his securities; which power is with the Secretary of War, and deemed sufficient. The above persons, named as securities, are worth $500,000, and this Mr. Clay, in his letter, will testify. The whole matter, as to form and otherwise, is now left to your judgment and discretion, and, when convenient, I shall be obliged by hearing from you.

With sentiments of great respect and esteem,
Your obedient servant,
RICHARD M. JOHNSON.

Gen. JESUP,
Quartermaster General.

N. B. I suggested to the Secretary of War that $500,000 would be a very reasonable appropriation for your department.

(4.)

GREAT CROSSING, *December* 27, 1818.

DEAR SIR: I received a contract executed by my brother Richard M. Johnson for me with you to transport the provisions and munitions, &c. of the detachments destined for the Yellow Stone and St. Peter's rivers. I am much pleased with this engagement. Independent of having a chance to make something for my trouble, I am delighted with the project. I believe it to be calculated to do much good for the United States. It will at once cut off British influence with the Indians. It secures the friendship of these wretches to the citizens of our happy country. It will serve as a great means to lay the foundation to civilize them, and ultimately to make them valuable members of society.

It appears to me sound policy to commence this work in time of peace. In time of war it cannot be effected, while all the angry passions are alive and their feelings and destiny linked in with our common enemy. No doubt the British agents and British emissaries will do what they are masters of to prevent it—that of endeavoring to cause the Indians to oppose the expedition, which may cause partial hesitations; but, they cannot effect their object, for I find that the government has taken hold of this subject, and they will not retrograde for any small opposition.

I believe the country may justly boast of a most valuable officer at the head of the War Department. He is a man possessing intelligence, energy of character, and love of country in an eminent degree. I feel interested in this business, and will endeavor to have an outfit which shall give hope and vigour to the enterprize. I have just re-

ceived an order from the hon. Secretary of War to prepare 420,000 complete rations. I am now preparing them. I could have every article in thirty days ready to move. They shall be of the best quality.

I have two steam boats which I am now preparing for the transportation of the supplies and munitions, &c.

I intend having extra anchors, cables, warps, blacksmiths, and carpenters, and their tools; axes to cut wood; several keel boats employed to lighten should it be necessary; skiffs to search for the deep channels, &c.; first rate pilots and officers on board to manage them.

It will afford me pleasure to be commanded by you freely. Your wishes shall be executed with as much promptness as I am master of.

I shall be happy to receive also your counsel in this great undertaking. I have not the pleasure of a personal acquaintance, but your character and valuable services are familiar. I shall feel proud to fulfil the most sanguine wishes of yourself and the honorable Secretary.

With sentiments of high respect,
Your obedient servant,
JAMES JOHNSON.

Gen. THOMAS S. JESUP,
Quartermaster General.

(5.)

GREAT CROSSING, *February* 12, 1819.

DEAR SIR: I have been much engaged making preparations for the expedition up the Mississippi and Missouri. I have already nearly accomplished all my purchases of provisions. I shall have the small balance provided before the time of its departure.

I have also provided three steam boats, which will be ready in March. I do believe another steam boat will be necessary. I can make a calculation as to the weight of the rations, because a certain number, 420,000, is ordered to be deposited the 21st of March at head quarters, (Belle Fontaine.)

But I have no data to calculate on the amount of munitions, baggage, &c. The freight is with me yet uncertain. It would help me considerably to know the probable weight of munitions, baggage, detachment, &c. also, what will be ordered up each river, as both must be provided. I have it in my power to obtain another steam boat if wanted.

I have not selected the largest steam boats. Prudence, I thought, dictated something like from 100 to 150 tons burthen, as these rivers are untried with steam navigation. In making the various arrangements it will readily occur to you that very heavy expenses are in-

curred. I shall employ over a hundred thousand dollars of capital on the naked steam boats; besides the common equipments, I must necessarily incur considerable additional expenses over and above Mississippi and Ohio voyages. And the times are so hard here that money cannot be had by any negociations; banks and individuals are hard run.

It will therefore greatly oblige me, besides promoting the public good, in making me as liberal advances as the nature of your official duties will admit. Rest assured I shall do my duty; and, sir, will balance your advance by exertions in the public service to accomplishing the desired object.

I have authorized my brother to receive any advance you may make to me, as my agent. Excuse me for these hints; the importance of having money to effect the great object has induced me to make this appeal to you.

With sentiments of greatest respect,
Your obedient servant,
JAMES JOHNSON.

The Hon. JOHN C. CALHOUN,
Secretary of War.

N. B. If another steam boat should be wanted it will still increase my expenses and want of funds. I do believe another will be necessary.

(6.)

GREAT CROSSING, *February* 13, 1819.

SIR: I have the pleasure to inform you that by this morning's mail I received your favour of the 21st ultimo. I have so far anticipated the wishes of the Secretary of War in early movements up the Missouri, that I have now nearly ready for shipment the whole of the requisition of 420,000 complete rations ordered by him. Early in March I shall have three steam boats ready for the service. Arrangements are made to fortify each boat to be bullet proof. I am happy to learn that two small pieces of artillery, gunners, and ammunition, will be furnished by government for each. The boats will be prepared for their reception so that they can operate successfully if found necessary. Should the government want more provisions than is now required, from an expected increase of troops in that quarter, it will be very agreeable to receive the order for a further purchase as early as suit, the convenience of the department; this being the best season to procure them, particularly the pork part of the ration; this article is pretty early shipped to New Orleans, which causes difficulty to procure it late in such quantity and quality as may be requir-

ed. Fresh pork cannot be had till in the season, and, if it could, it cannot be put up so as to be as sound and pure as in the winter. It will afford me much pleasure to comply with your request in communicating frequently on subjects which may be worthy of your notice.

Very respectfully,
Your obedient servant,
JAMES JOHNSON.

Gen. THOMAS S. JESUP,
Quartermaster General.

(7.)

GREAT CROSSING, *February*, 13, 1819.

DEAR SIR: Having entered into a contract to transport to St. Peter's and Yellow Stone the detachments, munitions, provisions, &c. ordered there by the Secretary of War, I feel an ardent desire to fulfil this engagement punctually.

In order to effect this, I beg here to ask for information on some points. What will be the probable amount or number of rations required to ascend each river? What will be the probable weight of the munitions, baggage, &c.? What will be the probable number of troops? This last may be an improper question; if so, I hope you will excuse me for asking it. I know I am ordered to deposit 420,000 complete rations at Belle Fontaine, by the 21st of March. I have supposed that the whole of these rations would go up the two rivers; but, I can give but a poor guess at the probable weight of the other branch of transportation; my contract is to have two steam boats ready, but, provided they are not sufficient, by thirty days notice, I must furnish others. This would retard the movements of the provisions; further, the size of the steam boats are not named in the contract; it is therefore very desirable to have information on the above inquiries, if consistent to be answered. I wish nothing to be lacking on my part, but to fulfil the most sanguine expectations and wishes of the War Department. I presume it is wished that the whole should go en masse compactly together. It is as easy for me to prepare for such a state of things as any other, provided I know in time. Another subject I beg here to call your attention to. In preparing for this arduous undertaking, the greater portion of the expense is incurred before we start. My steam boats will be considerably over $100,000; the outfit and extra arrangements for navigating unknown waters is very great. I request, therefore, that as liberal an advance be made as the nature of the case will admit. I pledge myself that it shall be covered promptly by every exertion in my power. I flatter myself that this request will be granted, when it is recollected that I have given such ample security for the faithful

despatch of my contract, and the recollection that few, if any individual, particularly in the west would be able to undergo the expenses without considerable pecuniary aid from his employer. I have made my brother Richard M. Johnson my agent, who will receive for me any advance which may be made. I incline to think, that in order to accomplish the desires and wishes of the War Department, that a fourth steam boat will be necessary; if so, I have it in my power to purchase a fine boat just finishing. I however shall wait until I have further information from you on the above inquiries. I may appear troublesome, but, your generous mind will forgive me, when I tell you that my heart and soul are warm in this subject.

With the greatest respect,
Your obedient servant,
JAMES JOHNSON.

Gen. THOMAS S. JESUP,
Quartermaster General.

(8.)

STEAM BOAT EXPEDITION,
Mouth of Missouri, May 26, 1819.

SIR: Your favor of the 5th, dated at Lexington, has been received a few days ago. I have been ready eight or ten days ago to proceed up the two waters, but I met with some difficuliy at Belle Fontaine, of which I can explain on sight. A cargo is setting out for Fort Crawford. I am ready at a moment's warning to proceed to the Council Bluffs or for the Yellow Stone. I have been very anxious to see you, since I arrived in this country particularly; it is unnecessary to add as I trust I shall see you on your arrival. Capt. A. Johnson, my agent, will be at St. Louis, who will wait on you toreceive orders, or to conduct you to this place.

With great respect, &c.
JAMES JOHNSON.

Gen. THOMAS. S. JESUP,
Quartermaster General, St. Louis.

I have had a conference with Capt. McGunnegle, the gentleman named in your letter.

J. J.

(9.)

STEAM BOAT EXPEDITION,
Mouth of Missouri, May 30, 1819.

SIR: Agreeably to your request to day, the following is a statement of the steam boats and their tonnage, now in these waters subject to your order to transport provisions up the Missouri and Mississippi for government, viz:

Expedition, 125 tons
Johnson, 75 tons
Calhoun, 80 tons
Jefferson, 125 tons

Each boat will accommodate as many soldiers as they carry tons; four keel boats are now loaded with provisions, two for each river, say 125 tons.

With great respect,
Your obedient servant,
JAMES JOHNSON.

Gen. JESUP.

(10.)

MOUTH OF MISSOURI, *June 7*, 1819.

DEAR SIR: I find that my inspection of pork and beef and my outfits of provisions takes more money than I have on hand. Will it be convenient to advance me small sums from time to time as I send for the above objects? If so, Capt Johnson, my agent, will want some while at St. Louis, which you will oblige me to advance; two keel boats with above 40,000 rations have been started from this place, and have had the advantage of the excellent windswhich we have experienced for days past. I think I shall want about three thousand dollars. Capt. Johnson will give you any information you may want on my business at this place, and bear any order you may want to send me. Our business here is going on well; the Missouri is on the rise. I shall be happy to know your wishes on any and every point, so far as I am concerned. They shall be promptly attended to.

Very respectfully,
Your obedient servant,
JAMES JOHNSON.

The "Johnson's" arrival yesterday would have removed the scruples of the most doubtful person as to our success in ascending the two rivers. J. J.

The Johnson run from St. Louis to this place twelve miles in five hours and three minutes.

(11.)

Interrogatories proposed to Capt. McGunnegle.

Interrogatory 1. Have you any knowledge of a contract with Col. James Johnson for the transportation of military stores, &c. on the Mississippi and its waters by steam boats and otherwise, entered into and concluded on the 2d of December, 1818, between the quartermaster general and the aforesaid Col. James Johnson?

Answer. I was furnished with a copy of this contract some time in the month of January or February, 1819.

Inter. 2. Were the steam boats of Col. Johnson furnished under this contract of a description which his contract calls for, namely, "calculated and fitted for the successful navigation of the Mississippi and its waters?"

Answer. I think they were not, having frequently heard of and witnessed their want of steam power and defects of machinery. On the morning after the steam boat Expedition reached St. Louis, she made an attempt to proceed to Belle Fontaine; an ordinary breeze prevailed down the river, against which she was unable to make headway; three several times she gained a point a short distance above her anchorage, and was each time drove back near the place she started from, where she came to anchor and remained until the wind subsided before she attempted another movement. Each of the steam boats furnished under this contract, namely, the Expedition, Jefferson, and Johnson, have all evidenced a want of steam power to stem the current of Missouri between its mouth and Belle Fontaine; warps were resorted to pass them through the rapid water between those points. I was on board the Expedition when she sailed from Belle Fontaine to the Council Bluffs. She had progressed but a short distance when one of her boilers sprung a leak; from the moment this leak commenced she lost her headway and continued laboring about half an hour without gaining a foot, notwithstanding her whole steam power was applied. This leak occasioned a delay until the following morning when she again got under way. An evidence of the Jefferson's want of power or defect of machinery was exhibited by the unusual time occupied in performing her trip from Wheeling to St. Louis, in which I believe she was engaged upwards of two months, when other steam boats generally perform the same trip in fifteen or twenty days. I was on board of this boat five days after her departure from Belle Fontaine. She had at this time progressed as far as St. Charles, a distance of twenty miles. While on board, a large iron crank gave way. On examining this crank, I found it had been broke before, and mended in a most clumsy and inefficient manner. This circumstance confirmed me in the opinion I had previously expressed, that this boat could not reach the Council Bluffs during that season. The same opinion was expressed by several officers of the 6th infantry then on board. Those officers were also

of opinion that neither the captain or engineer of this boat believed she would reach her point of destination.

Inter. 3. Were the steam boats furnished by Col. Johnson under his contract of the 2d December, 1818, put at the disposal of the quartermaster general within the period named in the contract? If not, state the cause or causes why they were not, and at what time they were ultimately placed subject to the orders of the quartermaster general or his agents.

Answer. They were not. I am unable to state the cause why they were not in readiness at the time specified in the contract. I can only state the time of their arrival at St. Louis; the cause of delay after their arrival, and the time they were reported to be in readiness to move with the troops. The steam boat Expedition reached St. Louis about the 14th of May, 1819, the Johnson a few days after. They both proceeded to Belle Fontaine for the purpose of discharging their cargoes, consisting of subsistence stores. Those stores Col. Johnson was under contract with the subsistence department to have delivered at St. Louis in the month of March and first of May, preceding the arrival of these boats; consequently neither of them could be considered in readiness to take the orders of the quartermaster general while employed under another contract. After their arrival at Belle Fontaine, a difference arose between Col. Johnson and Mr. Hempstead, (the military storekeeper of subsistence,) in relation to the manner of inspecting the provisions. Several days elapsed before Col. Johnson consented to land the provisions for inspection, but wished to have them inspected on board the boats. When this point was decided, it was proposed by Colonel Johnson, and agreed to by Mr. Hempstead, that the boats should drop down to the mouth of Wood river, in the Illinois, and there unload for inspection. I believe about ten days elapsed between the arrival of the boats and the time the inspection commenced. The Johnson was first unloaded, and, immediately after, descended the Mississippi, about sixty or seventy miles below St. Louis, to lighten and assist the steam boat Jefferson then on her way up. This trip she performed in a few days and returned to Wood river. Sometime after, perhaps between the 10th and 15th of June, the Jefferson reached Wood river, which place I had occasion to visit about the 24th or 25th of the same month, where I remained three days. At this time neither of those boats was in readiness to move; for at that time carpenters, blacksmiths, and caulkers, were employed in repairing them. The deck of the Johnson I was informed had underwent an entire caulking and pitching, and that from ten to twenty soldiers had been daily employed during a considerable part of the month of June in repairing those boats. I believe it was not until the 27th of that month that the Expedition and Johnson were reported to be in readiness for sailing; and, on the following day, the Jefferson sailed to St. Louis for the purpose of taking in a quantity of flour purchased by Col. Johnson to complete the necessary supply required by Col. Atkinson previous to the movement of the troops.

Inter. 4. What was the customary freight on the Missouri during the year 1819, and preceding years 1817 and 1818, and did not Capt. O. Fallon transport a part of the provisions, stores, &c. belonging to the Missouri expedition from St. Louis to the Council Bluffs? If so, at what price?

Answer. There was no established price for freight on the Missouri above Fort Osage until the year 1819. During the years 1817, 1818, and 1819, the established price to Fort Osage was three cents per pound; and, during the year 1819 the customary price of transportation from St. Louis to the Council Bluffs was five and a half cents per pound; at which price Captain O'Fallon and others transported public stores to the Council Bluffs, and at this price Colonel Johnson employed several boats in transporting provisions to the same place.

Inter. 5. Is not Captain O'Fallon on the paper of Colonel Johnson for a considerable amount either as endorser or drawer?

Answer. Captain O'Fallon informed me early in January last that he had endorsed the paper of Colonel Johnson for a considerable sum, and that this paper had been protested.

Inter. 6. Do yon know why Captain O'Fallon gave his certificate to Colonel Johnson, stating that the freight or transportation on the Missouri should be cents per pound, when he himself had contracted with you in 1819 to transport from St. Louis to Council Bluffs at five and a half cents?

Answer. I am unable to state why Captain O'Fallon gave this certificate. Notwithstanding this certificate, he did transport from St. Louis to the Council Bluffs during the last year at five and a half cents, and was anxious to engage freight the present year at the same rate.

Inter. 7. Is not Captain O'Fallon attached to that part of the army composing the Expedition to the Yellow Stone? If so, state in what capacity? and whether it is not his interest to have the highest rate of freight established on the Missouri?

Answer. Captain O'Fallon is sutler to the troops now at the Council Bluffs. It certainly would be his interest to have the highest rate of freight established on the Missouri, as he transports his own goods on that river, and is allowed a certain advance on the cost and carriage of his goods at the Council Bluffs.

Inter. 8. Were the steam boats of Colonel Johnson detained at any point, or at any time, in consequence of the negligence of any of any of the agents of the government? If so, state by whom, and at what point or points, and how long any or all of them were so detained.

Answer. I do not believe that either of Colonel Johnson's steam boats were ever detained one moment at any point, either on the Mississippi or Missouri, by negligence of any agent of the government.

Inter. 9. Were not the ordnance, ordnance stores, clothing, &c. laden on board the steam boat Jefferson? and was not the movement of the Expedition up the Missouri prevented until her arrival at St. Louis with the stores, clothing, &c.?

Answer. They were, and the troops were unable to make the necessary arrangements to move until the arrival of those stores and clothing.

Inter. 10. At what time did the steam boat Jefferson arrive at St. Louis? what detained her up the river? and whether she was in a complete state of readiness on her arrival at St. Louis to proceed with the other boats of the expedition?

Answer. I am unable to state the day of the month she arrived at St. Louis, but believe it was between the 10th and 15th of June. The cause of her detention up the river I understood was in consequence of the bad construction of her machinery, which had frequently broke on her passage up. She was not in a complete state of readiness to ascend the Missouri on her arrival at St. Louis, nor was not until the 28th of June, her machinery having required considerable repairs after her arrival.

Inter. 11. Did not the failure of Colonel Johnson to comply with his contract with the subsistence and other departments of the government mainly produce the delay in the movement of the expedition which took place at the mouth of the Missouri?

Answer. I believe the whole delay that took place after the arrival of the 6th infantry at Belle Fontaine was occasioned by Colonel Johnson's failure in making deposits of provisions at St. Louis, agreeably to contract with the subsistence department, and the delay of the steam boat Jefferson, which had on board the equipments necessary for the troops on their ascent of the Missouri.

J. M'GUNNEGLE, A. D. Q. M. G.

Sworn to and subscribed this 29th day of March, 1820, before

SAMUEL N. SMALLWOOD,
Justice of the peace in and for Washington, District of Columbia.

(12.)

Interrogatories proposed to Thomas Hempstead, Esq. Military Storekeeper at St. Louis.

Interrogatory 1. At what period did Col. Johnson arrive with his steam boats Expedition and Johnson at St. Louis and Belle Fontaine?

Answer. The steam boat Expedition, with Col. Johnson, arrived at Belle Fontaine on the 18th May, 1819, and the Johnson on the 21st of the same.

Inter. 2. What was the situation and condition of those boats on

their arrival at St. Louis and Belle Fontaine? Were they, or either of them, in a complete state of fitness and preparation on *arrival* at either of those points, to proceed up the river Missouri with a lading of provisions, ordnance, ordnance stores, troops, &c.?

Answer. As regards the situation of the steam boats, and their condition, on their arrival at Belle Fontaine, I can state that the Johnson underwent considerable repairs while at the mouth of Wood river, after she received her new captain. That the gentleman who had the command of her previous to that time was not capable of commanding a steam boat upon any river. The Expedition's captain was a very industrious persevering man, but the crew I conceived inexperienced.

Inter. 3. Did Col. Johnson deliver or offer to deliver the whole or any part of the provisions to the agent of the subsistence department at St. Louis and Belle Fontaine, which, by his contract with the government, he was bound to deliver at the latter place on or before the 21st March and 1st May, 1819? If he did *not* so deliver the provisions, state the cause or causes which prevented it; and also state at what time Col. Johnson did deliver or offer to deliver the whole or any part of the provisions contracted for.

Answer. Col. Johnson did not either offer or deliver any provisions agreeably to his contract, (i. e. on the 21st March and 1st May) and not until the 1st of June were any of the provisions inspected in a way they could be received by the agent of the government; and from that time until the 22d of July following they were inspecting and turning over the provisions, being stopped many days for the want of salt; but on which day all the provisions that could be received were inspected.

Inter. 4. Did the agent for the subsistence department require that the provisions should be inspected before delivery? If so, say whether they *were* inspected, by whom, and in what way.

Answer. The agent for the subsistence department *did* require the provisions to be well inspected; likewise informed Col. Johnson of the same by letter, dated 21st May, 1819, (as per copy of extract):

"Sir: I am informed by Maj. Wilson, the person I have chosen, as Military Storekeeper, to inspect the provisions which are to be received from you by contract with the government, that it will be impossible for any of the beef and pork to pass until it is repacked and salted.

"T. HEMPSTEAD,
Military Storekeeper.

"Col. Johnson,
Steam boat Expedition, on the Missouri river."

During the greater part of the inspection there was a regular detail of from ten to forty men, from the military, to aid and assist in the inspection, loading, and unloading the boats, &c. &c.

Inter. 5. At what period did the inspection of Col. Johnson's provisions commence? How long continue before the inspectors were com-

pelled to stop, for want of salt and a further supply of provisions? And what quantity had been inspected and received before this interruption took place?

Answer. The inspection of Colonel Johnson's provisions commenced the last of May, 1819, and continued until the 2d July following, at which time the steam boats were ready and loaded for the Missouri expedition. The delay occasioned for the want of salt within that time I am unable to state particularly; but, many days were lost, and from the 2d of July until the 16th, there was no provisions inspected and ready for shipment. The quantity received from Colonel Johnson on the last day of July is as follows, viz: 1079 barrels of pork, 214 barrels of beef, 1987 barrels of flour, 306 barrels of whiskey, containing 10,292¾ gallons, 8310 pounds of candles, 16,979 pounds of soap, 83¾ bushels of salt, 91½ gallons of vinegar.

Inter. 6. At what time was the inspection of Colonel Johnson's provisions resumed? How long continued before completed, and whether a *further* delay in their inspection took place for want of provisions to inspect, or from what other cause or causes?

Answer. A boat was loaded and started for the Council Bluffs on the 16th July, 1819, which was put on board as inspected, and from that time until the 11th of August following, it was inspected, received, and shipped, and nothing but a little whiskey, soap, and candles, was received afterwards.

Inter. 7. Were the steam boats Expedition and Johnson, belonging to Colonel Johnson, detained at St. Louis and Belle Fontaine, or at either of those places? If so, state how long they were detained at either or both of those places; the cause or causes of such detention, whether from the defects of their machinery, equipments, want of fuel, or other supplies necessary for their successful progress up the Missouri; and whether the failure of Colonel Johnson to comply with his contracts with the subsistence and other departments of the government did not mainly contribute to their detention at those points?

Answer. On the arrival of the Expedition at Belle Fontaine I waited on Colonel Johnson and informed him that I was the agent of the government to receive the provisions. He wished to have them inspected on board of the boats, and in a way that I could not receive them. From the 19th to the 24th May he remained in that way, on which day he consented to have them regularly inspected, and on the morning of the 25th the boats dropped down to the place designated for their inspection, where the Johnson took out her load and went down the river to lighten the Exchange and Jefferson.

Inter. 8. Were there any other boats than those belonging to, and furnished by, Colonel Johnson employed in the transportation of troops, provisions, and other stores, ascending the Missouri river? If so, state how many, their size, and description, what quantity of provisions, and other stores were laden on board of them, and what prices were paid for their freight or transportation.

Answer. There were many boats employed by the quartermaster department for the transportation of provisions &c. from Knox, Hol-

derman, and Co. one from Captain O'Fallon, and one from the Missouri Fur Company. The price the Missouri Fur Company, and Knox, Holderman, and Co. got was five and a half cents I think. I know the Missouri Fur Company received five and a half cents to the Council Bluffs. Captain O'Fallon's boat took her freight to Martin's Cantonment I think, and received four cents per pound.

Inter. 9. Were the steam boats Expedition, Johnson, and Jefferson, in a complete state of readiness to receive on board the provisions *immediately* after the close of their inspection? If not so, state the reason for it; when they were in readiness, and what quantity was ultimately put on board of them.

Answer. All of the first provisions inspected were shipped in Colonel Johnson's keel boats. The quantity put on board of the steam boats at the mouth of Wood river by me, was as follows, viz: on board the *Expedition* 340 barrels of pork, 307 barrels of flour, 87 barrels of whiskey, containing 3023 gallons, 1401 pounds of candles, 3783 pounds of soap. On board the *Johnson*, 132 barrels of pork, 100 barrels of beef, 296 barrels of flour, 55 barrels of whiskey, containing 1883 gallons, 1245 pounds of candles, 1698 pounds of soap. On board the *Jefferson*, 158 barrels of pork, 34 barrels of beef, 427 barrels of flour, 1984 pounds of candles, 3600 pounds of soap. Part taken out at Belle Fontaine and put on board of Knox, Holderman, and Co. boats.

Inter. 10. Were all the keel boats furnished by Colonel Johnson properly fitted, officered, manned, and *timely* placed at the disposal of government, for the transportation of provisions &c. up the Missouri? If not, state the number that were defective, the nature and extent of their deficiency, and whether one or more of the keel boats furnished by Colonel Johnson were not unloaded for the purpose of making some necessary repairs to enable them to proceed with safety up the Missouri.

Answer. Many of Colonel Johnson's keel boats were detained some days to procure hands after the loads were put on board, and in two instances they were compelled to unload the boats and repair them before they could proceed. The officers and men of those boats on the Missouri I believe were very good, but those on the Mississippi not as good, one in particular, as I am informed, made use and sold the provisions on the way to Prairie du Chien—some barrels of flour, whiskey, and meat.

Inter. 11. Were any of the troops, provisions, &c. laden on board Colonel Johnson's steam boats taken out of them in their progress up the Missouri, and put on board keel boats? If so, state the cause of such unlading, and the quantity so unladen, and whether the keel boats furnished by Colonel Johnson were employed in this service, or whether the keel boats furnished by the government were employed.

Answer. The steam boat Thomas Jefferson laden with provisions, troops, &c. not being able to proceed, was unloaded and her cargo taken in keels furnished by the quartermaster and Col. Johnson. The provisions taken out of the steam boat at Belle Fontaine

and St. Charles were transported to the Council Bluffs, I believe, in boats furnished by the quartermaster department.

Inter. 12. Did not the commanding officer of the Missouri Expedition *timely* state to Colonel Johnson that he wished the subsistence stores when shipped to be equally distributed among the several boats composing the expedition? and to accomplish this *necessary* object was not the movement of the expedition delayed until the arrival of the steam boat Jefferson? if so, state how long it was before the Jefferson did arrive and was in readiness to proceed with the other boats of the expedition.

Answer. The commanding officer requested me to have the provisions equally assorted in rations on board of each boat, and Col. Johnson must have known it, as he made the calculation for the Johnson, and we were compelled to wait for the Jefferson to get whiskey to complete the Johnson's supplies.

Inter. 13. At the inspection of the provisions how much was rejected as not coming within the terms of Col. Johnson's subsistence contract? and what were the specific reasons for the rejection?

Answer. The quantity of provisions rejected of Col. Johnson's I am unable to ascertain, although a considerable quantity of beef, pork, flour, and vinegar, was condemned.

Inter. 14. Did you assist in loading the boats, or any of them, furnished by the quartermaster's department? If so, state whether they received full loads, or whether they were sent off "half loaded."

Answer. I procured a full boat load of subsistence stores for one of the boats contracted for by the tonnage, and, after she was loaded, I was informed she had more put into her than the contract mentioned.

Inter. 15. Have you any knowledge of a contract made by Capt. James McGunnegle, of the quartermaster's department, for the boats to proceed to the steam boat Jefferson? If so, state whether that contract was not made as a precautionary measure to meet the anticipated failure of the Jefferson.

Answer. I have frequently been informed, both by Capt. McGunnegle and Mr. Reed, the agent of Knox, Holderman, & Co. that such a contract was made as a precautionary measure to meet any failure; and that Knox, Holderman, & Co. were bound to have three boats in readiness always until the contract was closed.

Inter. 16. What part of the cargo of the Jefferson was transported in boats thus employed? And what by boats furnished by Col. Johnson?

Answer. Only from information can I state. It was quartermaster's and subsistence stores.

Inter. 17. Did Col. Johnson furnish, within thirty days after the failure of the Jefferson, a sufficient number of boats to transport her cargo?

Answer. I do not know.

Inter. 18. Were you not the agent of the commissary's department at St. Louis? If so, state the reason why the supplies of your de-

partment were not in readiness on the arrival of the steam boats at Belle Fontaine.

Answer. I was the agent of the subsistence department at St. Louis when the subsistence stores arrived in the steam boats of Col. Johnson, and having them all to inspect at the late period of their arrival caused the delay.

Inter. 19. Why did you require that the provisions furnished by Col. Johnson should be inspected? Were you not bound to receive them without inspection?

Answer. I felt myself bound to have the provisions all inspected in consequence of instructions from Col. Gibson expressing his wishes that the provisions must be well inspected for both rivers.

Inter. 20. What is your opinion of Col. Johnson as a man of business? Did you think his arrangements able? How was he employed generally during the inspection of the provisions? Was not Col. Johnson compelled to purchase provisions before the troops could move? If so, state the time of that purchase.

Answer. I always believed Col. Johnson to be a good industrious persevering man, but not able in his management at the mouth of Wood river, which might be owing to his peculiar situation. Col. Johnson was compelled to purchase many articles for the load of the Jefferson.

Inter. 21. Are you not a director of the Bank of Missouri?

Answer. I am a director of the Bank of Missouri.

Inter. 22. Is not Capt. O'Fallon on Col. Johnson's paper in that bank, either as drawer or endorser to a considerable amount?

Answer. I know that Capt. O'Fallon endorsed Col. Johnson's paper. The amount I do not know, and that part of the bills he endorsed came back protested upon Capt. O'Fallon.

Inter. 23. Have you any knowledge of Capt. O'Fallon's having been employed during the past season by the quartermaster's department as a transporter of provisions and stores? If so, state to what points, and what price.

Answer. Capt. O'Fallon's boat took up to Martin's Cantonment the subsistence stores for Maj. Long's command. The price I do not know.

THOMAS HEMSTEAD.

UNITED STATES OF AMERICA,
Territory of Missouri. } *ss.*

Be it remembered that on the 21st of April, in the year 1820, personally appeared before the undersigned, notary public in and for the county of St. Louis, in said territory, by lawful authority commissioned and sworn, Thomas Hempstead, and maketh oath and saith that the answers to interrogatories by him above described, are true to the best of his knowledge and belief.

In testimony whereof, I have hereunto set my hand, and affixed my notarial seal, day and year above written.

F. WHITE, *N. P.*

Documents attached to 12.

I do hereby certify that I was at Belle Fontaine on the evening of the 18th of May last, on which day I was informed the steam boat Expedition arrived at that place, and on the morning of the 19th I waited upon Col. Johnson and informed him that I was the military storekeeper to receive the provisions. And, as there was no inspector for the town of St. Louis, the person I expected to get to inspect the same; on which day Colonel Chambers, of the rifle regiment, obliged me with a man to take a letter to Major Wilson, the gentleman Col. Chambers and myself had selected to inspect the provisions, and who lived several miles from Belle Fontaine, *and to which his letter is referred to marked* A, *and to my letter of equal date, likewise to Colonel Chambers, marked* B, *and Col. Chambers' answer, marked* C. Major Wilson and myself attended on board of the steam boat Expedition, on the 20th May, for the inspection, but it appeared it could not take place. *Major Wilson's certificate, marked* E, *is referred to and my letter to Col. Johnson, marked* F. But, on the 23d of May I received the original letter from Colonel Johnson to Colonel Chambers, dated on the 22d, marked D, which was enclosed to me, stating he was and had been ready for the inspection since the moment of his arrival, *but at the same time not answering my letter marked* F.; on which day Major Wilson and myself waited upon him, and not until the 24th instant did he consent to have the provisions inspected in a way that I could receive them, and those that were turned over to Lieutenant D. Keith, of the rifle regiment, for the deposit of the 1st June, were condemned before the expiration of one month, which was of the same cargo he wished me to receive as military storekeeper. On the evening of the 24th, or on the 25th of said month, the steam boats Johnson and Expedition dropped back to the mouth of Wood river, when the inspector and Col. Johnson agreed to have the provisions inspected; and the very moment the provisions were unloaded, and a place fixed for the inspection, Major Wilson and myself commenced and continued until it was all inspected.

THOMAS HEMSTEAD.

A.

SIR: Yours of this date has just been handed to me. I had promised Mr. Wilt to have been in St. Louis to-morrow, but I will dispense with that promise and attend on you at Belle Fontaine to morrow about nine o'clock. It appears to me at present I can only spare one day. If you will have all in readiness we can examine the most part in a day.

I am your most obedient,

GEO. WILSON.

MR. THOMAS HEMSTEAD.

B

BELLE FONTAINE, 19*th May*, 1819.

SIR: Will you have the goodness to let any one of your officers attend to the inspection of provisions that are to be landed from the steam boat Expedition, as there is no regular inspector of provisions in this country.

I am, very respectfully, sir,

Your obedient servant,

THOMAS HEMSTEAD,

Military storekeeper.

Col. T. CHAMBERS,

Commanding officer, Belle Fontaine.

C

CANTONMENT, BELLE FONTAINE,
19*th May*, 1819.

SIR: I have to tender you the opinion, in acknowledging the receipt of your letter of this morning, that there is not an officer within the limits of my command that I could consider in any wise adequate to so important a duty. Exclusive of this circumstance, I could not with propriety spare an officer, at present, from his duty in the line.

I am, sir, yours, &c.

T. CHAMBERS,

Colonel U. S. riflemen.

To Mr. HEMSTEAD.

D

STEAM BOAT EXPEDITION,
Belle Fontaine, 22*d May*, 1819.

SIR: Your note in answer to mine of this morning, (which requested to know whether provisions delivered in the garrison would be protected) has been received. You state you do not conceive yourself authorized to receive any provisions until they are regularly inspected and handed over by the commissary, Mr. Hemstead. I have been ready for the inspection ever since I arrived at this place. This has been made known. I wished it inspected on board of the boats: in that case none would be delivered but such as would pass inspection. I now state that I wish the inspector to come on board and commence the inspection. My inspector has been ready to commence from the first moment I arrived. I feel solicitous that the provisions should be inspected as soon as practicable, as it is hourly expected

the expedition up the Mississippi and Missouri will be ordered to commence.

I address myself to you because General Bissell is absent.

Your obedient servant,

JAMES JOHNSON.

Col. CHAMBERS.

E

I do hereby certify that about the 20th of May last, I was applied to by Col. T. Chambers, commanding the district of St. Louis, and Major Thomas Hemstead, commissary, &c. to assist to inspect the provisions about to be delivered at Belle Fontaine by Col. James Johnson, for the use of the United States troops. About this time I attended at Belle Fontaine for two days, and on board of Col. Johnson's steam boat Expedition. At this time part of the provisions were landed near to the mouth of Coldwater, and in Belle Fontaine, where the inspection was expected to be done; but, from certain matters attending the private business of Colonel Johnson, it became inconvenient for the colonel to have the inspection done at or near Belle Fontaine, which caused the colonel to apply to Major Thomas Hemstead and myself to attend the inspection on the east bank of the Mississippi river, about three miles below the mouth of the Missouri, at which place the colonel stated there would be every convenience for the inspection provided; to which proposal we both agreed. This, I believe, was on the 24th May, and on which day both the steam boats, Expedition and the Johnson, left Belle Fontaine. At this time I understood, from Colonel James Johnson, that he had appointed Major Whistler to attend the inspection with me.

I believe it was on the 1st June Major Hemstead and myself commenced the inspection of pork and flour at the place before mentioned; Major *Whistler* did not attend. Col. Johnson, at this time, had only about seven barrels of salt on hand, all of which was used on the first and part of the second day. We had then to stop the inspecting until salt was sent for from St. Louis, which was called about 16 miles by water. The inspection went on whenever there was salt, which was out generally every other day, until the 22d July, on which day I believe every article of the provisions on hand at the place was inspected, excepting some pork and beef, which was put aside; part of which was of a doubtful quality; and for the want of good barrels the overhauling of that meat was put off at that time. As I was about to be absent from the place of inspection for some days, I recommended to Col. James Johnson to cause the meat on hand, and as above stated, to be examined by his hands in my absence, and what was thought sound meat by them to be rubbed over with salt, and put away by itself, and when I returned I would inspect it, and if found to be sound and wholesome would pass it as such. I recommended to Col. Johnson to give the examination of this pork and beef to one of his men by the name of Houser, who had attended generally with me while I was

inspecting. I did not ascertain the number of those barrels exactly, but I believe there were from thirty to forty barrels in all. At this time the steam boat Johnson had descended the Mississippi, as I was told, to lighten and assist the steam boat Jefferson to ascend the river to the place of inspection. I think on the 4th or 5th of August I again attended at Col. Johnson's place of inspection, and continued for some days, in which time I inquired of Col. James Johnson what had become of the pork and beef which was on hand when I last left the place, and was to be overhauled before my return. The colonel made me for answer that what was good of it he had given to his boatmen, and for their provisions, and what was not good he had given to the women of the country to make soap of. After this I examined the ware house, and all around the place, and there was not a barrel or fragment of said meat to be seen.

Given under my hand, at St. Louis, this 7th of November, 1819.

GEO. WILSON.

F.

BELLE FONTAINE, *May 21st*, 1819.

SIR: I am informed by Major Wilson, the person I have chosen, as military storekeeper, to inspect the provisions which are to be received from you, by contract with the government, that it will be impossible for any of the pork or beef to pass until it is repacked and salted; but, should any of it answer, I shall be happy, as it should have been delivered ere this; and at any time you may have it in readiness for the inspection, Major Wilson and myself will attend, if you will have the goodness to inform me at St. Louis, through Col. Chambers, the commanding officer of this post, at what time to attend.

I am, very respectfully, sir, your obedient servant,

THOS. HEMSTEAD.

Col. JAMES JOHNSON,
Steam boat Expedition, on the Missouri river.

(13.)

Interrogatories proposed to Col. Chambers

Interrogatory. 1. At what period and under what circumstances did the steam boats Expedition and Johnson, belonging to Col. Johnson, arrive at St. Louis and Belle Fontaine?

Answer. The steam boat Expedition, with Col. Johnson on board, arrived at St. Louis on the 12th of May, 1819; on the 13th I repaired to St. Louis, and went on board, and was informed by Col. Johnson that he would be necessarily detained until the 15th for the purpose

of making some repairs, and to procure the proper description of fuel to enable him to try the experiment on the current of the Missouri. On the 14th arrangements were made by Maj. Hemstead and myself to have a suitable person in readiness to receive him on his arrival at Belle Fontaine for the purpose of inspecting the provisions. On the morning of the 15th, the boat got under weigh, and after making two attempts to stem the current of the Mississippi, in which she failed, came to at her former anchorage ground. I repaired the same day to Belle Fontaine, to make preparations for her reception; the wind from this period, until the evening of the 17th, was strong and unfavorable; but during that day the Independence steam boat passed the cantonment at the rate of about one and a half knots per hour. In the afternoon of the 18th, the Expedition hove in sight, but was compelled to let go her steam and warped round a point below the position. She however reached her point of destination that afternoon. The Johnson arrived at Belle Fontaine on the 21st May.

Inter. 2. Were they or either of them on *arrival* at St. Louis and Belle Fontaine in a *situation* and *prepared* to proceed up the river Missouri with a lading of provisions, ordnance, ordnance stores, troops, &c.?

Answer. On examining those boats I was not of the opinion that they were well calculated for the expedition; they were large and unwieldy, and did not appear, from the experiment which had been made, to possess a sufficiency of power to enable them to stem the velocity of the current. They underwent some repairs previous to their making the attempt. The event has justified the opinion which was entertained, as neither of them reached their point of destination.

Inter. 3. Were the Expedition and Johnson or either of them, detained at St. Louis or Belle Fontaine? If so, state particularly the cause or causes of such detention, and how long they were detained at either or both of those places.

Answer. On the morning of the 25th they dropped down from Belle Fontaine to the mouth of the river for the purpose of evading an arrest from the civil authority of St. Louis. From the period of their arrival, until that time, they were most generally engaged in repelling the attempts of the sheriffs. An attempt was made on one occasion to land some provision, but, on finding that it would not be protected from arrest by the military, it was re-embarked. I know of no detention on the part of the government during the time specified at Belle Fontaine. On the contrary, an inspector was introduced to Col. Johnson the day after his arrival, who immediately reported himself ready to commence the examination; and every facility which could be afforded was cheerfully tendered him. I perfectly recollect that Col. Johnson refused to have the provisions inspected at his expense, nor did he agree to the measure until the afternoon of the 24th instant, when the inspector agreed to receive them at the mouth of the river, on the Illinois side, for the purpose of evading the civil authority. I did not attend the inspection

at that position, and consequently am unable to depose further. A subaltern and twenty men were detailed to assist on the occasion.

Inter. 4. Were the steam boats Expedition and Johnson fitted, officered, manned, and navigated, in a way which was calculated to insure their safe, timely, and successful progress up the river Missouri; and did they or either of them so proceed to their point of destination? If they did not, please state the cause or causes which prevented it.

Answer. The captain of the Expedition sustained the character of an industrious and zealous man, but I did not conceive that he possessed that experience in the management of steam boats which was requisite. He had but one seaman amongst his crew; the residue were men requiring promptitude, expertness, and a proper idea of subordination. The captain of the Johnson was exchanged at the mouth of the river for one of more capacity; the event proves the opinion tendered. The Expedition joined my command at Fort Osage, after being lightened of two hundred barrels about thirty miles in the rear, on the 18th of August, which induced me to order a detachment of troops with the crew of the steam boat to bring it up. It was put on board much to the dissatisfaction of the captain, who was very solicitous to leave his boat there and take the cargo up in keels. The crew expressed their apprehension of losing the boat, and consequently their wages. I, however, gave him an order to proceed, which was complied with, but he had progressed but a few miles when he grounded and compelled me to arrest a keel boat empty descending the river, which lightened her and enabled her to proceed. Of the Johnson, I am unable to depose positively, as I never fell in with her during the passage. On the 24th, the Expedition ran aground, which induced me to order one hundred men to her assistance, which enabled her to get clear of the bar.

Inter. 5. At what period did the steam boats Expedition and Johnson proceed from St. Louis and Belle Fontaine up the river Missouri?

Answer. On the 14th of June I got under weigh with the rifle detachment, leaving the steam boats at the mouth of the river. The Expedition joined me at Fort Osage on the 18th of August. I am unable to state more specifically.

Inter. 6. Were either or both of the steam boats Expedition and Johnson detained in their progress up the river Missouri? If so, state at what points they were detained, how long they were detained at each point, and the cause or causes of such detention.

Answer. I know of no detention to the steam boats during the passage.

Inter. 7. Were the whole or any part of the provisions, troops, or other articles, laden on board the steam boats Expedition and Johnson taken out of them while ascending the river Missouri? And, if so, state the reason why it was done, and whether the articles were put on board keel boats belonging to the government, or those furnished by Col. Johnson.

Answer. This I have stated in answer 4th. The Expedition was lightened above Fort Osage of a quantity of provisions, stores, &c. and put on board of a keel boat which Capt. Craig of the steam boat engaged to remunerate. The ostensible reason was that she drew too much water to progress.

Inter. 8. What was the state of the provisions offered by Colonel Johnson on his arrival at Belle Fontaine?

Answer. I never attended any inspection of provisions at Belle Fontaine, but the acting assistant commissary received a quantity deemed sufficient for one month's depot for a detachment at that post, without having it resalted; which was spoiled in a few weeks after, and consequently condemned.

Inter. 9. Was not Colonel Johnson required to forward provisions to Cantonment Martin, on the Missouri, previous to the arrival of Colonel Atkinson at St. Louis? If so, please state what quantity, and whether the requisition was complied with.

Answer. Under an apprehension that the troops stationed at Cantonment Martin would be destitute of provisions, I reported the circumstance to General Bissell, who was then in command, who directed me to apply to Colonel Johnson to forward a supply immediately. I accordingly did so, by letter, through my adjutant, and received his reply, that it should be immediately complied with. When I got under weigh from Belle Fontaine I was under the impression that a keel boat had preceded us with this supply; but on the 19th July, within about twelve miles of Fort Osage, I learned that the command at Cow Island was compelled to detach by company, for the purpose of subsisting themselves by their rifles. I immediately despatched an express with the information, and halted at Fort Osage, where I conceived I should produce less embarrassment than if I joined the command above. On the 28th a boat arrived from Chariton with sixty barrels of flour, and six hundred weight of bacon, which I immediately despatched to the relief of the troops at Cow Island. I remained at this position until the 23d August, in consequence of an order from Colonel Atkinson to this effect: "That so soon as the steam boat Expedition shall arrive at the post, that the detachment of infantry and riflemen, with the steam boat Expedition, should move to Cow Island and await further orders."

I composed one of the board of officers who regulated the prices of the sutler, Captain O'Fallon, and, so far as my recollection now serves, he made an exhibit to the board of the first cost of the articles which he had procured for the consumption of the troops, to which was added the amount of transportation incurred. A per centage was then adopted by the board, which I do not think exceeded thirty per cent.

TALBOT CHAMBERS,
Colonel U. S. riflemen.

Sworn and subscribed to at Carlisle, in the county of Cumberland, before me, a justice of the peace in and for said county, 23d March, 1820.

ELISHA DOYLE.

(14.)

Interrogatories proposed to Major Biddle.

Interrogatory 1. Did you not ascend the Missouri some distance in a steam boat, constructed under the superintendence of Major Long, and commanded by him? If so, be pleased to state whether that boat was calculated for the navigation of the Missouri.

Answer. I ascended the Missouri river in the months of June and July, 1819, as far as Franklin, in the steam boat Western Engineer, which was constructed at Pittsburg, under the superintendence of Major Long, U. S. topographical engineer, and was commanded by him. Whether the defect was in want of power in the steam engine, or a faulty construction in the hull of the boat, I do not pretend to decide; but, comparing her progress with that of keel boats on the same stream, or that of steam boats on other currents, I am decidedly of opinion that the Western Engineer is not calculated advantageously to navigate the Missouri river.

Inter. 2. Did you examine Col. Johnson's steam boats, or either of them? If so, state your opinion as to their efficiency, and as to their performance generally.

Answer. I am not sufficiently acquainted with steam boats to answer this interrogatory, nor do I of my own knowledge know the precise progress they made in ascending the river. At the Isle aux Vache, however, in the month of September, Colonel Atkinson decided that he would abandon steam boat navigation altogether, and the Expedition, the only boat that had reached that point, was then left behind, and keel boats resorted to exclusively in moving the troops towards the Council Bluffs.

Int. 3. At what time did you arrive at St. Louis; when did Col. Atkinson arrive; and how long was he compelled to remain there, or at Belle Fontaine?

Answer. I arrived at St. Louis on or about the 10th June, 1819. Colonel Atkinson had been there some days. The 6th regiment was at Belle Fontaine. I left St. Louis on, I think, the 21st June. Colonel Atkinson was still there with the 6th regiment, and I do not know when he left it.

Int. 4. What did you understand to be the cause of the delay?

Answer. In frequent conversations which I had at St. Louis with Col. Atkinson, he expressed great regret at the delay occasioned in consequence of the provisions not being ready to move. These delays were occasioned, as I understood, by the non-arrival of the steam boats Calhoun and Jefferson, and the time consumed in inspecting the provisions on board the boats that had reached the junction of the Missouri and Mississippi rivers. The Jefferson steam boat was detained for some time near Cape Girardeau, waiting the arrival from Louisville of a new piston head, to replace one that had been broken; and I understood the Calhoun could not stem the current of the Mississippi. Being employed in a service somewhat distinct

from the expedition, I can say but little, of my own knowledge, concerning the efficiency, progress, or delays, of Col. Johnson's steam boats.

Thomas Biddle, being duly sworn, doth depose and say that the foregoing answers to interrogatories are true.

THOMAS BIDDLE.

Sworn before me this 7th April, 1820.

EZ. MACDANIEL,
A justice of the peace for the county of Washington, D. C.

(15.)

Answers to the interrogatories proposed by the Quartermaster General.

To your first interrogatory I beg leave to state that in June and part of July, 1819, I was in Kentucky. I have had but one transaction with the Colonels Johnson, and that was in obtaining drafts from Col. J. Johnson to the amount of $10,000 on Col. R. M. Johnson, two of which I sold in St. Louis for $3000, which drafts have been honored; and for the balance, I received a draft on the paymaster general from Col. R. M. Johnson, the amount of which has been passed to my credit by the paymaster general.

In relation to the remaining four interrogatories, I must plead ignorance, never having to make particular inquiries of the price of transportation on the Missouri; nor have I any knowledge whatever of the contract between the government and Col. Johnson; nor did I ever ascend the Missouri more than five miles.

I have the honor to be,
Respectfully,
Your obedient servant,
JOHN HALL.

Washington, April 7, 1819.

(16.)

Interrogatories proposed to Maj. O'Fallon.

Interrogatory 1. What were the ordinary and customary rates of freight or transportation on the river Missouri during the year 1818 from St. Louis to the following posts and places, viz: to Fort Osage, Martin's Cantonment, and Council Bluffs?

Answer. In reply to the above, I can only observe, that I do not recollect any freighting being performed to any point on the river Missouri, above Fort Osage, prior to the year 1819. The price of freight to Fort Osage has been and I believe is still three dollars per hundred.

Inter. 2. How did you obtain a knowledge of the *established rates* of freight on the Missouri during the year 1818?

Inter. 3. Was there any difference in the price of freight when more than one boat belonging to the same owner was freighted at the same time and for the same service? If there was a difference be pleased to state it.

Answer. Interrogatories 2d and 3d being predicated upon freighting being performed to points on the Missouri above Fort Osage cannot be answered. It is true that in 1818 provisions were transported by the contractor to Martin's Cantonment, but, I was informed, in boats belonging to himself, and the amount taken in each not ascertained, which was the case with respect to the merchandise transported by myself to the same place.

Inter. 4. Were the steam boats Jefferson, Expedition, and Johnson, belonging to Col. Johnson, *calculated* and *fitted* for the navigation of the river Missouri?

Answer. With respect to the steam boat Jefferson, personally, I am unacquainted, excepting, while passing St. Louis, the first time I ever saw her, was at Belle Fontaine, when on the eve of proceeding up the Missouri. Her power I was informed, was equal to that of either of the other two above mentioned, but on trial it appears she did not perform as well. The Expedition arrived at Louisville, in Kentucky, while I was there. Shortly after Col. Johnson came there to see her. In consequence of her exhibiting considerable power in passing up the falls of Ohio, having in tow another steamboat, the Independence, I was induced to recommend to Col. Johnson the purchase of her, stating that I believed her fully capable of stemming the current of the river Missouri, but was not sanguine that she or any other steam boat could navigate that river with profit or safety. When the Johnson returned from New Orleans, just previous to her proceeding to St. Louis, she was considered a good running boat, having performed the trip in twenty-five days.

Being at a loss to say, if any, what description of steam boats will answer for the navigation of the river in question, I do not feel myself capable of farther answering this question.

JOHN O'FALLON.

Washington, February 9, 1820.

(17.)

Interrogatories proposed to Frederick Yeizer.

Int. 1. Were you employed in the navigation of Colonel Johnson's steam boat Jefferson on the Missouri river, during the year 1819? and if so, in what capacity were you employed?

Answer. I was employed as 1st mate on board the steam boat Jefferson, on a voyage to Council Bluffs, on the Missouri, in 1819.

Int. 2. Was the steam boat Jefferson calculated and fitted for the navigation of the river Missouri; and was she officered, manned, and navigated, in a way which was calculated to insure her safe, timely, and successful progress up the river Missouri; and did she proceed with safety to her point of destination? If she did *not* so proceed, state particularly the causes which prevented her progress up the Missouri: whether it was owing to defects in her machinery and equipment; to the improper and unskilful management of her officers and crew in navigating her, or both; and to what other cause or causes.

Answer. The steam boat Jefferson was fully able to stem the current of the Missouri river. She had one captain, two mates, engineer, and engineer's mate, one pilot, and a sufficient crew of sailors and firemen. She did not proceed to her place of destination, but lay to, about 175 miles from the mouth of the Missouri river. The principal cause of her not proceeding was owing to the want of water in the river. Her machinery being astern, she could not be made to draw less than about five feet nine inches water; and in places on the river not more than 5½ feet of water could be found. Her machinery was frequently out of order, particularly the force pump. I do not consider myself a judge of the strict duties of officers of a steam boat, being myself not an experienced steam boat man, that in the Jefferson being my first trip. Her captain and 1st mate were only keel or flat boat men before that voyage. Her 2d mate was an old sailor, and had been, I believe, several voyages in steam boats. Her steersman was a good and careful one. Her engineer, in my opinion, was careless and not attentive to his duty, and sometimes not competent from intoxication. Her pilot was one of the best in the country. Her crew always obeyed orders.

F. YEIZER,
late 1st mate steam boat Jefferson.

(18.)

Answers to interrogatories proposed to James Taylor by the quartermaster general of the army.

Int. 1. Are you not a stockholder in the Farmers and Mechanics' Bank, at Cincinnati?

Answer. I am.

Int. 2. Is not Col. James Johnson deeply indebted to that bank? If so, to what amount?

Answer. I am not a director of that bank, and of course cannot speak positively of the transaction which I understood took place some years ago with the bank, by Colonel James Johnson and his associates. My understanding of it is about as follows: Col. James Johnson and his associates, mostly his connections, formed a kind of exchange establishment at Georgetown, in Kentucky; they obtained from the Farmers and Mechanics' Bank at Cincinnati a considerable sum of money, at a certain per centage, and I have understood, from one or more of the directors of the bank, that Colonel Johnson and his associates owed that bank about one hundred and ten thousand dollars.

Int. 3. Have you ever seen the Missouri river? If not, what means have you had of knowing the difficulties which it presents to navigation?

Answer. I have never seen the Missouri river. I know the difficulties which it presents, I presume, in the same way which most persons know it before they have seen it. I live on the bank of the Ohio, opposite to Cincinnati, where I have frequently seen boats from the Missouri river. I have some interest in that country, and several near connections; and, independent of what I have read, have frequently conversed with persons of intelligence on the difficulties of the navigation of that river, who knew them from actual experiment.

Int. 4. Have you ever examined Col. Johnson's steam boats, Jefferson, Johnson, and Expedition? If so, what is your opinion of their power and efficiency?

Answer. I have never seen but one of Col. Johnson's steam boats, the one built at Wheeling. I was not on board of her. She appeared to be a large boat, but I had no opportunity of judging of her efficiency.

Int. 5. Would you, in a transaction of your own, be willing to pay twenty cents per pound for transporting large cargoes, when you could have it as well done for five and a half cents?

Answer. I would not.

JAMES TAYLOR.

DISTRICT OF COLUMBIA,
Washington county.

On this 10th day of April, 1820, appeared before the subscriber, a justice of the peace for the county aforesaid, General James Taylor, who made oath, in due form of law, that the aforegoing answers to the several interrogatories, and subscribed by him, are true, as far as stated from his own knowledge, and so far as stated on the information of others, he believes to be true.

R. C. WEIGHTMAN.

(19.)

Interrogatories proposed to Colonel James Morrison.

Inter. 1. Were you not the contractor with the government to supply the military posts on the Mississippi and Missouri rivers, with provisions during the year 1816? If so, be pleased to state the price which you paid per pound, hundred, or ton, for their transportation from St. Louis to Fort Osage.

Answer. My contract expired in the month of May, 1816. The provisions for issues to the troops at the advanced posts were transported in my own boats from St. Louis, under the supervision of my agent, Major George Wilson. When I transported provisions from Kentucky, (say Louisville,) to St. Louis on freight, I paid two cents per pound exclusive of storeage and average, &c.

Inter. 2. What is the distance by water from Louisville to New Orleans? And what was the ordinary or accustomed freight during the years 1818 and 1819 from New Orleans to Louisville in steam boats?

Answer. The precise distance from Louisville to New Orleans I am unable to state, but, believe between 1300 and 1600 miles. I have never had an interest in a steam boat; nor have I at any time (that I now recollect) imported articles from New Orleans. The customary freight after steam boats had supplanted the use of keel-barges, was, I think, five cents per pound. It has fallen, as I have understood, to half that sum or price within the last year, or possibly, a short time earlier; but of the precise time, I am unable to speak. My impression is, that when I wrote to Colonel Johnson in the latter part of the year 1818, dissuading him from making a contract with the government for the transportation of provisions and munitions of war up the Missouri river for his brother, the price was five cents per pound.

Inter. 3. Was there any difference in the rate of freight on the Ohio and Mississippi rivers during the years 1818 and 1819, between steam and keel boats? If so, please state what that difference was.

Answer. To this question I am unable to answer, perhaps satisfactorily, because during that period, I was not engaged in shipments, nor was I contractor.

Inter. 4. Have you a personal knowledge of the navigation of the rivers Missouri and lower Mississippi? If so, state what are the comparative difficulties in the navigating of those rivers in steam and keel boats, and what opportunities you have had to ascertain them.

Answer. I have no *personal* knowledge of the lower Mississippi nor of the Missouri river. My knowledge of their character, and of the risk, expense, and hazards, incident to the navigation of those rivers, and of the western waters generally, has grown out of a residence in the western country since my youth; and of having been engaged for many years in transporting the products of the western country to New Orleans, sometimes on private account; and, also,

as navy agent; and as army contractor to most of the military posts on those waters. My interest made it necessary to acquire a perfect knowledge of not only the expense and risk, but, also, of the obstacles which presented themselves in those rivers to boats of all descriptions. But even with the experience and knowledge I possess, I am unable to state precisely the difference of expense and risk in navigating those rivers in keel or steam boats. Experience so far has shown that steam boats are to be preferred on the Mississippi, and perhaps keel boats or barges on the Missouri river. There is certainly considerable risk in navigating the former. But, in my opinion, it would not be hazarding too much to say, the risk and difficulties in the latter to steam boats are ten times greater. I will mention such as present themselves at the moment, viz: The colour and rapidity of the current precludes the discovery of sand banks or shallows, of snags, logs, and sawyers, to which may be added, the constant shifting and changing of the channel. The sharp sand in the waters of the Missouri will, in a short period, greatly injure the machinery of a steam boat; and the accumulation of sediment will very soon render the boiler useless, unless removed daily. The difficulty and delay of procuring fuel is also worthy of consideration; and the expense of either having double sets of machinery, or persons on board with the means of repairing or making new any part that may prove defective should be taken in the calculation of expense and risk for navigating this river, especially in advance of its settlements. Again, the value of a steam boat is considerable, while that of a keel boat or barge is comparatively small. Many other risks and expenses incident to navigating the Missouri in steam boats might be pointed out; those named, it is presumed, will suffice. On the purport of this interrogatory, I think, I was explicit in the answer to a similar question asked by Colonel R. M. Johnson, to which I beg leave to refer. I retained no copy of my answers; at present speak from recollection only.

Inter. 5. Are you not on the paper of Colonel James Johnson either as drawer or endorser? And, if so, please state to what amount, and whether you drew or endorsed for him previous or subsequent to the date of his contract with the quartermaster general for transportation or otherwise.

Answer. I am not now, nor was I ever, on the paper of Colonel James Johnson, either as drawer or endorser. He was indebted to "Morrison and Bruce" about 7 or 800 dollars, for which he gave a draft. I am not certain whether he was the drawer or some one of his brothers. The draft was not paid. On his return home from St. Louis, he paid about a moiety, the balance has long since I apprehend been paid.

Inter. 6. Would you in a transaction of your own be willing to pay twenty cents per pound for the transporting of large cargoes, when you could have it as well done for five cents and a half per pound?

Answer. No, I would not. I have in some cases given more than the individual asked for articles which I wanted: because I was con-

scious he would soon discover the price he had proposed or contracted for, would produce loss, and would fail to perform his engagement, consequently a loss and disappointment to me would be the result. It is, however, but just to declare, I have usually purchased articles at the lowest prices I could procure them.

Inter. 7. What was the state of navigation on the western waters during the latter part of the summer, and the whole of the autumn of 1819; and, also, during the winter of 1819-20?

Answer. The western waters or rivers were unnavigable from July to some time in the early part of February last. My letters mentioned the first steam boats leaving Louisville or Shippingport about the 7th of that month.

Inter. 8. Do you know the cost of Colonel Johnson's steam boats, or of either of them. If so, be pleased to state the amount.

Answer. I do not know the cost of Colonel Johnson's steam boats or either of them? I have heard him and some of his brothers estimate them with their appurtenances to 200,000 dollars and upwards.

Inter. 9. Have you ever examined those boats or either of them? If so, what is your opinion as to their efficiency?

Answer. I have never seen the steam boats of Col. James Johnson or either of them; nor do I know any thing of their character or efficiency.

JAMES MORRISON.

WASHINGTON COUNTY, }
District of Columbia. }

Personally appeared before me, a notary public for said county, James Morrison, who made oath, conformable to law, that the above answers are true to the best of his knowledge, belief, and recollection, and signed the same in my presence.

Given under my hand this 10th day of April, 1820.

HENRY WHETCROFT,
Notary Public.

(20.)

[*No.* 114. *Due* 21-24 *August.*]

$1500—Exchange.

GREAT CROSSINGS,
22d June, 1819.

Sixty days date of this our first of exchange, second of same tenor and date unpaid, pay to the order of John T. Johnson fifteen hundred dollars, at the Office of Discount and Deposite of the Bank of the United States Pittsburg—value received; which charge to your obedient servants,

SEBREE & JOHNSON.

Capt. H. JOHNSON,
of Quartermaster's Department, Pittsburg, Pa.

[Endorsed]

Pay to Robert J. Ward, or order.

JOHN T. JOHNSON.

Pay to W. T. Barry, or order.

ROBT. J. WARD.

Pay to M. T. Scott, Cashier Farmers and Mechanics' Bank of Lexington, or order.

W. T. BARRY.

Pay to Alexander Johnston, jr. Esq. Cashier Bank of Pittsburg.

M. T. SCOTT, *Cash'r.*
ALEX'R JOHNSTON, *Cash'r.*

A true copy of a draft on file in this office, and charged to the account of James Johnson.

PETER HAGNER, *Auditor.*

Tredsury Department,
Third Auditor's Office, April 7, 1820.

(21.)

MISSOURI RIVER,
Steamboat Expedition, July 5, 1819.

SIR: Major Sebree, who I intended should remain in company with Captain A. Johnson, to forward on the balance of the supplies up both rivers, has taken charge of the Thomas Jefferson. My brother will return to-morrow or next day to remain in his place. Rest assured that it shall not be neglected. I shall go some distance up the river Missouri, and after getting them in a good way, think I shall return myself to see the rest brought up.

I wish to be personally present where I can do the most good. I have all the steam boats now well commanded, and have entire confidence; of course it will afford me an opportunity to return, if it promotes the general concern. My promised statement will be sent back by my brother. A boat load of flour will be sent off as soon as a patroon, who is now engaging hands, sets them up the Missouri; the boat and flour are waiting for him. Capt. Johnson will receive the advance promised, and follow me to St. Charles.

With due respect, your obedient servant,

JAMES JOHNSON.

Gen. THOS. S. JESUP,
St. Louis.

The quantity of provisions you want shall be purchased, provided there is not enough on the arrival of that of which I have advised you. I have sent on a gentleman to Kentucky with instructions to my brother to keep me supplied with fresh provisions. There shall

not be a failure on my part; my whole time shall be devoted to the service. J. J.

If my agent has taken any improper advantage of your deputy, Mr. Picket, it will not be sanctioned by me. More of this in my next. J. J.

(22.)

MOUTH OF MISSOURI,
August 28th, 1819.

SIR: Your favor of yesterday has just been received. I am not yet advised by the Missouri Bank that any sum has been deposited in that institution by government, subject to my order; every dollar, however, that may be placed at my disposal, shall be appropriated for government objects promptly. I beg, however, to deny that Capt. McGunnegle has been compelled to employ any boats on account of deficiency in my arrangements. Upon your suggestion, I would prefer increasing the security for the performance of my contract; but you have named property already mortgaged to government, as my brother informs me by letter. I would suggest whether it would not be as satisfactory to do it in Kentucky, as you pass through. There is my property, and there are my friends. You shall have security to your satisfaction.

With great respect, your obedient servant,

JAMES JOHNSON.

P. S. I would come down, but illness prevents.

J. J.

Gen. JESUP.

(23.)

MOUTH OF MISSOURI, *July* 9, 1819.

SIR: I arrived at this place to day from St. Charles, where I left the three steam boats Expedition, Jefferson, and Johnson, and their cargoes, all safe and in good plight. I had the pleasure to find each of those boats competent to oppose the rapid current of the Missouri with entire success; nevertheless, I had the mortification of seeing the Jefferson and Johnson aground; the latter was put afloat with ease; the former required great exertion, one whole day and two nights to effect the same object with her. I have left orders with their commanders to proceed without delay to the Council Bluffs. I have no

doubt but a speedy trip will be effected provided the channel is only deep enough, say seven or eight feet. My pilots inform me that the water is deep enough. I have returned to forward on the balance of the provisions up each river, a very large quantity of which is now here ready for inspection to load and proceed to the two places of deposite up each river. My agent, Capt. Johnson, is directed to apprize Maj. Hemstead of the circumstance. Two keel boats have also arrived from Prairie du Chein. The captains of these boats I have not yet seen, as they were at St. Louis discharging a cargo of lead brought down the Mississippi. I trust they will be here to-morrow, where I have ordered them to take in fresh cargoes. I am now as usual subject to your order. Enclosed I hand you a statement agreeably to the requirements of your letter of the 4th instant.

With due respect,

Your obedient servant,

JAMES JOHNSON.

Gen. THOMAS S. JESUP, *St. Louis.*

N. B. I have just had the pleasure of seeing Capt. B. Johnson, who has just arrived from Prairie du Chein, where he saw two full loads delivered of provisions in good order. No news had been received of the troops' arrival. The other boats were going on well. There had been no want of provisions at that place, but a surplus, and at Rock river also. You will oblige me by stating whether it is probable the detachment will proceed to St Peter's this fall.

J. J.

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(24)

Additional interrogatories proposed to Captain James M'Gunnegle by the quartermaster general.

Int. 1. What was the state of Colonel Johnson's credit when the quartermaster general arrived at St. Louis?

Answer. I do not know that Colonel Johnson had established a credit at St. Louis previous to his arrival in May, 1819. If he had, the course he pursued on his arrival, in resisting the civil authority in the case of the St. Louis Bank, must have in a great measure impaired his credit. If public opinion be a criterion by which we can judge the credit of an individual, I can have no hesitation in saying that Colonel Johnson's credit was very limited on the arrival of the quartermaster general at St. Louis; and that credit, limited as it was, has since been most materially impaired, if not entirely destroyed, by his frequent failures to comply with his engagements made with individuals in that country, coming under my knowledge.

Int. 2. What was the opinion of the quartermaster general at that time in relation to the contract of Col. Johnson, and why was Col. Johnson continued in service?

Answer. Shortly after the quartermaster general reached St. Louis I have frequently heard him declare that he would not suffer Colonel Johnson to transport a pound of public property if large advances had not been made him: that Colonel Johnson had totally failed in his contract for transportation, and that it was then absolutely necessary to employ him, to secure the government as far as practicable.

Int. 3. What number of keel boats were employed by the quartermaster's department, in transporting the cargo of the steam boat Jefferson; what was the tonnage of each boat; and what was the amount paid each boat?

Answer. Four keels were employed by the quartermaster's department in transporting the cargo of the Jefferson; three of them averaged thirty-five tons each; the fourth was rated at thirty-three tons: the sum of three thousand four hundred dollars was paid for each boat.

Int. 4. What opportunity has Major Hall had of becoming acquainted with the navigation of the Missouri?

Answer. I conceive his opportunities of becoming acquainted with this subject have been very limited. It is less than twenty months since his first arrival in that country; a considerable portion of this time he has been absent at Prairie du Chien, on the Mississippi, at Belle Point, on the Arkansas, and in Kentucky. He had no opportunity of ever seeing the Missouri in either of those trips, except in passing its mouth on his route to Prairie du Chien; and I have every reason to believe that he has only seen the Missouri between its mouth and Belle Fontaine.

Int. 5. Do you consider Major Hall a competent judge of the navigation of the Missouri, and the prices which ought to be allowed for freight on that river?

Answer. I do not, and consider him much less competent to judge of the price of freight, believing that he has never made a single inquiry, or even expended a thought on the subject, besides, it is so completely out of the line of his duty, and unconnected with his pursuits in that country, he could not have had an opportunity of obtaining the necessary information to enable him to judge correctly on the subject.

Int. 6. Did Colonel Johnson transport, during the year 1819, for Indian traders, or for the inhabitants of the Missouri; and did not the military do their own transportation in 1818?

Answer. I have no knowledge of Colonel Johnson's having transported for Indian traders, or other individuals, on the Missouri, in 1819. The troops transported their own stores on the Missouri, in 1818.

Int. 7. Were any boats thrown out of employment in consequence of Colonel Johnson's arrangements on the Missouri in 1819?

Answer. No boats were thrown out of employment in consequence of Colonel Johnson's arrangements in 1819; but, on the contrary, a

number of boats obtained employment on the Missouri and Mississippi in consequence of his want of arrangement.

Int. 8. On what did the price of transportation on the Missouri depend in 1817, 1818; and what was the customary hire of boatmen on the Missouri during those years.

Answer. I have been performing the duties of quartermaster at St. Louis and Belle Fontaine nearly five years. During the whole of this time I have found the price of transportation to depend entirely upon the wages paid to hands, the cost of subsisting them, and the season of the year in which it was done. There is an advance of from one fourth of a cent to a cent per pound in transportation from Pittsburgh to St. Louis, and from St. Louis to Council Bluffs, Fort Osage and Prairie du Chien, after the 1st of July, when the waters begin to subside. The wages of boat hands have been uniformly one dollar per day until the summer of 1819, when one dollar twenty-five cents per day was paid to a number of hands employed on the Missouri in transporting public stores. Notwithstanding the advance of wages, the freighters on the Missouri informed me their profit on the trip to Council Bluffs was more than they usually made, in the same time, on the Ohio or Mississippi.

Int. 9. What would be the entire cost of the outfit and the expense of a voyage from St. Louis to the Council Bluffs, of a keel boat, say of forty tons? And, supposing her to deliver thirty-five tons lading, what would the freight amount to at the usual rates, say five and a half cents per pound?

Answer. The cost and outfit of a forty ton keel boat, and the expense of a voyage from St. Louis to the Council Blufis, and back to St. Louis, will not exceed three thousand three hundred dollars. The amount of freight would be $3,850, leaving a profit $550; to this add $1,000, the supposed first cost of the boat. This will make a profit of 1500. From this sum deduct $150 for damage that may be sustained by the boat and rigging while performing the trip. This will leave a clear gain of $1,400 on one boat, in a voyage that can be performed in about eighty days.

Int. 10. Was Colonel Johnson applied to by the quartermaster's department to furnish transportation to the military post on the Arkansas in 1819? If so, did he furnish this transportation?

Answer. I applied to Col. Johnson to furnish a boat to transport provisions to Belle Point, on the Arkansas. The answer to this application was, "I have no boat at this time, and it is uncertain when I shall have; therefore I can't engage."

Int. 11. Was the steam boat Calhoun ever in the service of the quartermaster's department, or ever tendered to it at St. Louis, or any other point on the Mississippi or Missouri?

Answer. She never was, nor ever tendered to the quartermaster's department at any point within my knowledge. I understood this boat had entered the Mississippi sometime in July last, with a cargo of provisions, but was unable to ascend the river. Her cargo was brought to St. Louis in keels.

Inter. 12. Do you know personally H. I. Offutt, master of Col. Johnson's steam boat Jefferson? If so, state particularly what are your impressions of his character; how far in your view his statements in relation to the claim of Col. Johnson for transportation, &c. is to be relied upon, and whether he is not part owner of the steam boat Jefferson.

Answer. I have frequently seen Mr. Offutt on board the steam boat Jefferson. On the evening this boat arrived at St. Louis, I witnessed a quarrel between Mr. Offutt and a part of his crew. His vulgar and abusive language, and the insolent and insubordinate conduct of his men, on this occasion, gave me a most unfavorable opinion of him. His subsequent conduct under my notice at Belle Fontaine, at the mouth of Wood river, and at St. Charles, has only served to confirm my first impressions of this man. The statement of Mr. Offutt, in relation to the claim of Col. Johnson for transportation, is totally unsupported by facts in every point that I have any knowledge of, or am able to give an opinion upon. In his remark on the navigation of the Mississippi and Missouri, and of the advantages on the former, and the disadvantages on the latter, he has in every point given a view of the Mississippi in its high stage of water, and of the Missouri in its low stage. The Missouri, when high, has a depth of water nearly equal to that of the Mississippi, and then presents no other obstructions to navigation than are presented by the Mississippi. Except in velocity of current, those rivers are of the same character, and commence to rise and fall about the same time. There is no time during the spring and summer that boats can ply between New Orleans and Louisville, that they cannot ply between St. Louis and the Council Bluffs. At the time Mr. Offutt refers to, in speaking of the difficulties in navigating the Missouri, the same difficulties existed between Louisville and New Orleans. I believe I may venture to assert there was no steam boat reached Louisville last season that left New Orleans after the 5th of July, the time Col. Johnson's steam boats left Belle Fontaine; and I am warranted in saying that no keel boat of fifty tons could have found a sufficient depth of water between Louisville and the mouth of Ohio after the 17th of July, at which time Col. Johnson freighted two keel boats each *over* fifty tons from the mouth of Wood river for the Council Bluffs. Mr. Offutt states "it requires at all times a double set of hands to navigate the Missouri with keel boats." On this subject my opportunities of information have been equal to if not better than his, and I know that a keel boat of forty tons requires from fifteen to seventeen hands to navigate her on the Mississippi; on the Missouri a boat of the same tonnage only requires from nineteen to twenty-one hands, making a difference of four hands between the two rivers. He also states "it requires double crews on steam boats," to navigate this river. If this be the fact, it then proves that Col. Johnson's steam boats were not properly fitted for the navigation of this river, there being but ordinary crews on board his boats. He states "the wood is not so good as on the Mississippi, and more difficult to procure," and that he "has to cut

his wood as he proceeds." In the two first points he must be mistaken. I have seen every mile of Missouri at least fifty miles higher than he has ascended, and believe the growth and character of the timber on the Mississippi and Missouri are the same, and know there is no difficulty in procuring it, as the bottoms and bluffs of this river are thickly covered with timber several hundred miles higher than he has ascended, and the circumstance of his having to cut his wood as he ascended, is evidence of the defects in Col. Johnson's arrangements in not having wood prepared for his boats, which is the usual course pursued by steam boats on the Mississippi. This man further states that he can "perform a trip from Louisville to New Orleans and back sooner than he can from St. Louis to Cow Island," and that from Cow Island "the difficulties of the river increase." Admit the first part of this assertion and it would prove to my mind that this boat was not calculated for the navigation of the Missouri, knowing that the steam boat Independence ascended the Missouri two hundred and thirty miles above St. Louis, discharged her cargo at Chariton, then took on board a cargo of lumber and returned to St. Louis in about twenty-five days. To that part of his assertion wherein he states "the difficulties of the Missouri increase from Cow Island," I must reply that he can only have a knowledge of that part of the river from the information of others, as he has only ascended the Missouri about one hundred and fifty miles; my information relative to the navigation of this river may be as correct as his, and I have always understood that the difficulties of navigation were not so great after passing Cow Island. He lastly states there was "to my own knowledge ample transportation to have carried up the whole of the provisions by giving the shortest notice." On this point he is grossly mistaken or wilfully states an untruth, as it was not in his power to have had this knowledge when he was up the Missouri more than an hundred miles from the point where transportation was required; and when the steam boats sailed from Belle Fontaine, upwards of ninety tons of provisions and military stores remained at the river which they were unable to carry. He might have known, and Col. Johnson did know, his boats could not carry those stores a day or two before they started, and if he knew any thing about Col. Johnson's keel boats, he must have known there was but one disposable keel within Col. Johnson's control at that time. This keel Col. Johnson promised to furnish for the purpose of carrying the provisions, amounting to about thirty tons. I waited for this boat from the 4th to the 8th of July, at which time she was not furnished, and was then obliged to employ other transportation for all those stores, as they lay exposed at the river without the protection of a guard. About this time Col. Johnson made proposals to Holderman & Co. (freighters at St. Louis) to form a partnership in freighting on the Missouri. His proposals were rejected. He then employed Duff Green and J. D. Lummis, each of whom transported for him to the Council Bluffs. If Col. Johnson "had at all times ample transportation," as stated by Mr. Offutt, there could have been

no necessity for employing those men. In relation to Mr. Offutt's being a part owner of the steam boat Jefferson, I can only state that it was currently reported, and generally believed at St. Louis, at least within the circle of my acquaintance, that he was a part owner of this boat.

Inter. 13. What do you suppose would have been the greatest amount which the Missouri and Mississippi expeditions would have cost if Col. Johnson had not been employed?

Answer. Taking as a basis for this calculation the amount of freight charged by Col. Johnson, embracing an item of $4,570 for stores shipped by him on the Mississippi in 1819, and not introduced in his account rendered to the quartermaster's department, together with the whole amount of transportation employed, boats actually purchased, and boats that it would have been necessary to purchase to transport all the troops, and allowing the sum of $12,000 for extra pay to the troops that would have been employed in navigating the public transports; the greatest amount, which the Missouri and Mississippi expeditions would have cost, had Col. Johnson not been employed, would not have exceeded one hundred and fifty thousand dollars.

J. McGUNNEGLE.

DISTRICT OF COLUMBIA, } *ss.*
Washington County,

On this 12th day of April, 1820, personally appeared before the subscriber, a justice of the peace for the county aforesaid, Captain J. M'Gunnegle, who made oath, in due form of law, that the several answers to the aforegoing interrogatories are true, so far as the facts stated are of his own knowledge, and so far as stated on the information of others, he believes to be true.

Sworn and subscribed the day and year above written.

R. C. WEIGHTMAN.

(25.)

Interrogatories proposed to Colonel Atkinson by the agent of Colonel Johnson.

Inter. 1. Were the supplies of provisions and other articles intended for the use of the troops ordered up the river Missouri, placed by Colonel Johnson at the mouth of Missouri and its immediate vicinity, sufficient in quantity and character to have laden the two steam boats, Expedition and Johnson, at the time of their arrival there?

Answer. The whole quantity of provisions landed opposite to the mouth of the Missouri was sufficient to load the two steam boats Expedition and Johnson; 100,000 rations of the quantity was, I understand, sent up the Mississippi. I have no data by which I can say that the remainder was, or was not, sufficient to load the two boats.

The inspection of the provisions was not completed till after the 20th June, although a large party of soldiers were furnished to assist in repacking the meat, and in unloading and loading the boats.

Inter. 2. Had Colonel Chambers moved with his detachment in advance of the expedition prior to the arrival of the steam boats Expedition and Johnson at the mouth of the Missouri? And, if so, how long before, and with what number of men?

Answer. Colonel Chambers moved with a detachment of 270 men of the rifle regiment from Belle Fontaine on the 14th June.

Inter. 3. What number of troops were at Martin Cantonment previous to the movement of Colonel Chambers?

Answer. The copy of a report of the garrison at Martin Cantonment is annexed. It appears there were 272 aggregate at that post in the month of May.

Inter. 4. At what period did you inform Colonel Johnson the expedition was ready to move up the Missouri? And how long after this notice had been given was it before the Expedition did move?

Answer. On the 8th of June I informed Colonel Johnson that the 6th regiment had arrived, and that the expedition would be ready to move as soon as transportation and provisions were furnished. The expedition did not move until the 4th or 5th of July.

By the quartermaster general.

Inter. 5. Could the expedition have moved with safety without the ordnance stores, and clothing; and, also, a larger supply of provisions than that which Colonel Johnson had on hand, and did not Colonel Johnson inform you, some time in the month of June, that his steam boats were not ready to proceed?

Answer. The expedition could not have moved with propriety without the ordnance, munitions, and clothing, nor without a larger supply of provisions than what Colonel Johnson had on hand, even on the 28th June. The quantity then shipped, which included all that Colonel Johnson had at the mouth of the Missouri, was only a supply of about three months' allowance of bread stuff and five months of meat for the troops on the Missouri. The steam boat Jefferson which had on board the ordnance, munitions, and clothing, did not get to St. Louis before the 20th June. Colonel Johnson informed me on the 8th June by letter, which is annexed, that the steam boats Johnson and Expedition were not ready to proceed; nor would they be sooner than a week from that time.

Inter. 6. Would it have been safe and prudent for the expedition to have moved without an additional supply of provisions, and was not Colonel Johnson compelled to purchase provisions at St. Louis late in June to enable him to furnish the additional quantity which you required?

Answer. It would by no means have been safe or prudent for the expedition to have moved without an additional supply of provisions. The steam boats Expedition and Johnson arrived at Belle Fontaine on the 28th June, when I ascertained the amount of provisions that

Colonel Johnson had furnished and was shipped. The bread part of the rations being so entirely deficient in quantity, I informed Colonel Johnson the expedition should not move till we were furnished with eight hundred barrels of flour more than we then had. That there were large quantities of flour in St. Louis; that he might make the purchases himself, or I would order the commissary to do it. He chose to make the purchase himself, and accordingly done so. On the 30th of June the steam boat Jefferson dropped down from the mouth of Wood creek to St. Louis, and received the whole or the greatest part of the flour.

Int. 7. Were the steam boats of Col. Johnson calculated and fitted for the navigation of the river Missouri, and were they officered, manned, and navigated, in a way which was calculated to insure their safe and timely progress up the Missouri? State particularly the nature and extent of the causes, if any, which produced a delay or failure in the progress of any or all the steam boats of Col. Johnson.

Answer. The steam boat Jefferson is not calculated or fit for the navigation of the Missouri river, her draught of water being too great. I do not think this boat had a good crew, nor was it well managed. The steam boats Expedition and Johnson are good boats, and as well calculated for the navigation of the Missouri as most other boats of their size; they however draw too much water for the navigation of that river. The Expedition, I think, was well manned and well managed. The Johnson was not so well managed.

The delay of the steam boat Jefferson was owing to the frequent breaking of her machinery, and the difficult navigation of the Missouri; her failure to the great draught of water, and bad management. The letter of Capt. Bliss, which is annexed, will shew the time and cause of her failure.

The delay of the steam boat Expedition may be attributed to bursting one of her boilers near Franklin, and breaking her rudder near the same place; the difficult navigation of the river, and her too great draught of water. She proceeded no farther than Cow Island. The cause is explained in Captain Craig's letter, which is annexed, who had command of her.

The delay of the Johnson may be attributed to bursting one of her boilers near Martha's Ville; breaking her rudder near the Miami Bend; the difficult navigation of the river, and too great draught of water. She failed near the mouth of the Kansas river, having broke the piston head of her machinery, which could not be repaired there. The letter of Captain Haile, which is annexed, gives the facts.

TERRITORY OF MISSOURI, }
County of St. Louis, } ss.

Before me, Theodore Hunt, Esq. one of the justices assigned to keep the peace, to administer oaths, &c. in the county aforesaid, personally came and appeared before me, Col. Henry Atkinson, the affirmant in the foregoing deposition, and made oath, in due form of law,

that the three preceding pages, purporting to be answers to certain interrogatories therein referred to, are just and true, as therein stated.

H. ATKINSON,
Colonel 6th infantry.

Subscribed and sworn to before me, at St. Louis, this 17th day of March, 1820.

THEODORE HUNT.

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MOUTH OF MISSOURI, *June* 8, 1819.

SIR: In answer to your inquiries, on the subject of the amount of freight, for which I have provided steam boats to ascend the Missouri, I state as follows: viz:

Steam boat Expedition	175	ton vessel,	say	125	up Missouri.
Steam boat Johnson	110	do	do	75	do
Calhoun	130	do	do	80	do
Jefferson	175	do	do	125	do
		Total		405	Tons

The above tonnage will transport, say 160,000 pounds munitions, &c. and about 260,000 rations.

The above boats will accommodate, pretty conveniently, four hundred and five men, by stowing close, it strikes me that we shall be able to make two trips this season. This, however, will depend entirely on the distance you may winter. If other transportation be required on the first trip, it shall be furnished forthwith. If a second trip was only made with two of the boats, the number of rations would then amount this season to about 420,000. If three returned the second time, it would amount to about 500,000 rations; provided they all returned a second trip, the amount of rations would be about 600,000 rations.

With great respect,
Your obedient servant,
JAMES JOHNSON.

Col. ATKINSON.

The inspection is now going on rapidly; it will be completed in a week, at which time the boats will be ready to sail at a moment's warning; nothing but that prevents the Expedition and Johnson from sailing at this time.

J. J.

STEAM BOAT JEFFERSON, *Missouri river,*
Six miles below the Little Manitou, August 11, 1819.

DEAR SIR: In Maj. Sebree's absence, we passed ever a part of the bar and returned yesterday about 12 M. and about 4 P. M. it was ascertained, to a certainty, that on account of the falling of the water since we have been lying here, it is impossible for the Jefferson to proceed any farther. I have written by lieutenant McIlvaine to Capt. McGunnegle for one hundred and forty tons of lading, fifty-five of which is for ordnance, the remainder consists of provisions, quartermaster's stores, and baggage. At the solicitation of Maj. Sebree, I have also informed him of the conversation which the major says

he had with you at Franklin relative to Col. Johnson's furnishing the keels in case of the Jefferson's failure, leaving it however to Capt. McGunnegle and Col. Johnson to make their own arrangements, and that I had not received any instructions from you upon the subject. I have in like manner informed him of the keel at Franklin. The troops will encamp I expect at the mouth of the Petite Bonne Femme; and, as I have no other instructions upon the subject, no part of her cargo will be received by me until the arrival of the keels. Should you think proper to have the cargo, or any part of it, taken out and put on shore, it will become necessary to hut a proportion of it, and the huts must be constructed by the men. Your directions upon this subject are respectfully solicited.

We are much in want of good tents, and if any are at Franklin, it is much desired that they would be sent us if convenient. Your instructions relative to the disposal of cargo in keels, given at St. Charles, contemplated the completion of the lading of two keels which have since preceded us. Not being entirely acquainted with the wants of the service, I should wish to know further, how large a proportion of the different kinds of stores are to take the preference as the keels shall arrive for the purpose.

I am, Sir, in haste, &c.

JOHN BLISS,

Capt. 6th Infantry, Commanding Detachment.

Col. H. Atkinson,
6th Inf. Com. Dept. &c.

Camp Martin, *September* 17, 1819.

Dear Sir: I am sorry to inform you that the Johnson has broke her piston head and is unable to proceed until she gets a new one from the falls of Ohio. The accident took place thirty miles above Fort Osage when under way. There is about sixty tons to bring from her; you know what is at this place; our dependence is on the return boats from Council Bluffs; every day after the keels return you may scorch me if I dont make good use of. I watch for the old Frenchman, for I am afraid he will slip by. I passed lieutenant Keeler as I came from the Johnson. I expect him here this evening. He thinks the keels from the Jefferson will be on shortly. He has the ordnance stores with him.

Respectfully, &c.

SILAS CRAIG.

Col. Atkinson.

Steam Boat Johnson, *September* 11, 1819.

Sir: The breaking of the piston head has finally terminated the progress of this boat.

I shall at this place wait the return of the keel boats from the Council Bluffs, and pursue the course pointed out in your letters of the 3d and 6th inst. The boat is five miles below the mouth of the river Kansas.

With respect, &c. &c.

W. T. HAILE.

Col. ATKINSON,
Commanding 9th Department.

(26.)

A Table of distances from the Mouth of the Missouri to the Council Bluffs.

NAMES OF PLACES.	Distances.	Total Distance.
Saint Charles - - - -	21	
Osage River, (Little) - - -	20	
Charles Creek - - - -	27	
Shepherd's Creek - - - -	15	
Gasconade River - - - -	17	100
Muddy River - - - -	15	
Great Osage - - - -	18	133
Narrow Creek - - - -	5	
Cedar Greek and Island - - -	7	
Lead Mine Hill - - - -	9	
Hamilton's Creek - - - -	8	
Split Rock Creek - - - -	8	170
Saline or Salt River - - - -	3	
Manitou River - - - -	9	
Good Woman River - - - -	9	
Mine River - - - -	9	200
Arrow Prairies - - - -	6	
The Charitons - - - -	14	
Ancient village of the Missouri Indians, near which formerly stood Fort Orleans	16	
Grand River - - - -	4	240
Snake Creek - - - -	6	
Ancient village of the Little Osage Indians -	10	256
Tiger Creek and Island - - -	20	
A Creek and Island - - -	12	
Fine Prairie and Creek - - -	12	
Fort Clark or Osage - - -	6	306

Table of Distances—Continued.

NAMES OF PLACES.	Distances.	Total Distance.
Hay Cabin Creek - - - -	6	
Coral Bank - - - -	9	
Blue water River - - - -	10	
Kansas River - - - -	9	340
Little River Platte - - - -	9	
First old Kansas village - - -	28	
Independence Creek - - -	28	
Second old Kansas village - - -	1	
St. Michael's Prairie - - -	24	
Nodawa River - - - -	20	450
Loup or Wolf River - - -	14	
Big Nimeha - - - -	16	
Tarkio Creek - - - -	3	
Nish-na-botona - - - -	25	508
Little Nimeha - - - -	8	
Bald-pated Prairie. The river Nish-na-botona is at this place not more than 150 yards from the bank of the Missouri.	23	
Weeping water Creek - - -	29	
River Platte - - - -	32	600
Butterfly Creek - - - -	3	
Musqueto Creek - - - -	7	
Ancient village of Ottoes - - -	11	
Do. of Aynwas - - - -	6	
River - - - - -	11	
Council Bluffs - - - -	12	650

Interrogatories proposed to George Colefax at St. Louis.

Interrogatory 1. Were you employed by Col. Johnson as commander of his steam boat the Johnson during the year 1819? And, if so, state particularly whether she was calculated and sufficiently fitted for the navigation of the river Missouri, and whether she was equipped, officered, manned, and navigated, in a way which was calculated to ensure her safe, timely, and successful progress up the Missouri river, and whether she did so proceed to her point of destination.

Answer. I was employed by Col. Johnson as commander of the steam boat the Johnson in 1819, from the 17th June; the steam boat

Johnson was, in my opinion, fitted for the navigation of the river Missouri; she was equipped and manned, as I supposed, when we left Belle Fontaine, as would ensure her safe, timely, and successful progress up the Missouri river; she did not proceed to her point of destination in consequence of having, by accident, broke her piston head.

Inter. 2. Was the steam boat Johnson, while under your command, detained in her progress up the Missouri river? If so, state particularly what were the causes of such detention, at what points she was detained, and how long detained at such point; whether from the insubordination of her crew the defect of her machinery or otherwise.

Answer. The steam boat Johnson, while under my command, was detained by lowness of water, being subject to frequent grounding on sand bars, and was detained at a point about thirty miles above St. Charles about ten days, in consequence of having, by accident, burst one of her boilers. There was no detention arising from the insubordination of the crew.

Inter. 3. Were you not compelled, by the refractory conduct of the crew of the steam boat Johnson, to call on the commanding officer of the troops on board of her, to aid you in the proper exercise of your command of said boat? and was not the aid thus required promptly furnished?

Answer. I was never under the absolute necessity of asking any aid in consequence of refractory conduct of my crew, but did once ask the commanding officer of the troops on board to put under arrest a man who was somewhat intoxicated for disobedience of my orders, which was promptly done.

Inter. 4. Were the steam boats Expedition and Jefferson, belonging to Col. Johnson, calculated, and fitted, navigated, officered, manned, and equipped, in a way to ensure their safe, timely, and successful progress up the river Missouri?

Answer. The steam boats Expedition and Jefferson were considered among the first class of steam boats, new and completely fitted; they had their full complement of officers and men as was supposed sufficient for the voyage to the Council Bluffs; and I have good reason to believe there was no expense or exertions, on the part of the owners, spared to render them complete for the voyage.

Inter. 5. Were these boats, or either of them, detained in their progress up the Missouri? And, if so, state particularly what were the causes of such detention, whether their detention or final failure of either, or both of them, to proceed up the Missouri to their points of destination was owing to the defects of their machinery, the improper and unskilful management of their officers and crews in the navigation of them or otherwise.

Answer. What detentions these boats experienced in their passage up the river Missouri, I know not, not being in company with them on the passage, and but seldom hearing from them after we left St. Charles.

GEORGE COLFAX.

United States of America, } ss.
Territory of Missouri,

Be it remembered, that, on the 24th day of March, in the year 1820, personally appeared George Colfax before the undersigned, Notary Public in and for the county of St. Louis, in said territory, by lawful authority commissioned and sworn, and made oath, on the holy evangelists of Almighty God, that the answers by him above written and subscribed are true, to the best of his knowledge and belief.

In testimony whereof, I have hereunto set my hand, and affixed my notarial seal, the day and year above written.

F. WHITE, *Notary Public.*

(28.)

Interrogations proposed to Col. Gibson by the Quartermaster General.

Interrogatory 1. Who was the contractor for subsistence for the Missouri expedition during the year 1819?

Inter. 2. What number of rations were required for that expedition, and at what time or times were they to have been delivered?

Answers to 1 *and* 2. Col. James Johnson, in November, 1818, by his attorney, Col. R. M. Johnson, entered into a contract with the Commissary General of Subsistence, for the delivery of subsistence stores at St. Louis, on the 1st June, 1819, and 1st October, 1819; but it was subsequently found that the provisions would be wanted much earlier in the season, and it was verbally agreed by the Commissary General of Subsistence, under the direction of the Secretary of War, and Col. Richard M. Johnson, agent and attorney of Col. James Johnson, that Col. James Johnson should deliver the subsistence stores in question under his old contract for Belle Fontaine, and a requisition was made on him, according to the terms of that contract, by the Secretary of War, on the 10th day of December, 1818, for four hundred and twenty thousand rations, to be delivered on the 21st day of March, 1819. And on the 10th February, 1819, another requisition was made on Col. James Johnson for two hundred and fifty thousand rations, to be delivered on or before the 1st May, 1819, in addition to the four hundred and twenty thousand ordered on the 10th December, 1818.

Inter. 3. Were they delivered at the time required by the contract?

Answer. By the returns made to the office of the Commissary General of Subsistence, by the subsistence Military Storekeeper at St. Louis, it appears that no subsistence stores were delivered by Colonel James Johnson at the times required.

Inter. 4. Have the contract, and the requisitions under it, been, to this day, complied with?

Answer. It appears, by the returns of the officers of the Subsistence Department, at St. Louis, that the requisitions made on Col. James Johnson have not been fully complied with.

Inter. 5. How was the deficiency supplied?

Answer. The deficiency in the subsistence stores, occasioned by Col. Johnson's failure, was supplied by purchases made by officers of the subsistence department.

Inter. 6. Did not the public service sustain great injury and inconvenience from the failure of the contractor with your department?

Answer. The failure of Col. James Johnson to deliver the subsistence stores at St. Louis at the periods and in the quantities required was productive of great delay, and must have been a serious injury to the service.

Inter. 7. What is the weight of a ration?

Answer. The weight of a ration is, with its tares, as near as can be ascertained, two and a half pounds.

GEO. GIBSON,
Commissary General of Subsistence.

DISTRICT OF COLUMBIA, } to wit:
County of Washington,

On this 13th day of April, 1820, George Gibson, Commissary General of Subsistence, appeared before the subscriber, a Justice of the Peace for said county, and made oath, in due form of law, that the matter and things stated in the aforegoing statement, are true, to the best of his knowledge and belief. Sworn before

JOSEPH FORREST.

(29.)

We certify that the prices charged and received by us, for transporting merchandise, &c. from St. Louis, Missouri territory, to points on the Missouri river, during the year 1818, were as follows, to wit:

To Franklin, Howard county, distance 250 miles, one dollar and fifty cents per hundred pounds;

To Chariton, distance 270 miles, one dollar and seventy-five cents per hundred pounds;

To Fort Osage, distance 325 miles, three dollars per hundred pounds, for any quantity less than a boat load: or, two dollars thirty-three and a third cents per hundred pounds when a full cargo was furnished.

Given at St. Louis, Missouri territory, this 17th day of February, 1820.

KNOX, HOLDERMAN, & CO.
Transporters.

In presence of
J. McGUNNEGLE.

(30.)

ST. LOUIS,
February 15th, 1820.

I certify upon honor that the price of freight from St. Louis to Fort Osage, on the Missouri river, in the spring and summer of the year one thousand eight hundred and eighteen, was at the rate of three cents per pound.

JAMES KENNEDY,
United States Agent for Transportation.

I
Osa
one
cent

(32.)

The following is an estimate of the daily expense of a Frigate of orty-four guns in active service—considerably less than is charged by olonel Johnson for the detention of one of his steam boats.

Frigate United States 44 *guns.*

1	Captain	$5 33
4	Lieutenants	8 32
3	Purser, surgeon, and master	6 24
6	M. mates, boatswains, and gunners	6 96
26	Midshipmen quarter gunners	22 88
250	Seamen	162 50
100	O. S. and boys	54 00
50	Marines	12 50
		$278 73

(33.)

Memorandum.

$189,889 37½	Is the amount claimed by Col. Johnson for transportation at 16¼ cents.
97,896 12	Is the amount proposed by the quartermaster general to be allowed to Col. Johnson.
$91,993 25½	Is the difference between the amount claimed and that which is proposed to be allowed.

The sum proposed to be allowed to Col. Johnson is made up as follows:

$78,896 12	For transportation at 6¾ cents per lb. taking the rate to Fort Osage, at the date of the contract, as the basis, and calculating according to the distance.
19,000 00	About 11 per cent upon the costs and outfits of his boats for the *alleged extraordinary risk.*
$97,896 12	
$64,270 23	Is the amount of the transportation at the ordinary rates.
$33,625 89	Is the loss to the government by employing Col. Johnson's boats instead of others.

(34.)

St. Louis, February 25th, 1819.

SIR: I have the honor to acknowledge the receipt of your letter of the 31st December last, relative to navigation of the Mississippi and

Missouri, and regret, from my limited knowledge of those streams, I am not able to give you more satisfactory information on this subject.

The Mississippi is navigable for boats from 50 to 200 tons burthen from this place to Prairie du Chien, and from thence to the mouth of St. Peter's, for boats of from 20 to 50 tons, during the months of April, May, June, and frequently in July, but will seldom afford water for boats exceeding 25 tons to the Prairies, and from thence to the St. Peter's, for boats over ten tons, during the balance of the year. The obstructions of this river in low water between St. Louis and Prairie du Chien, are innumerable sand bars and the rapids of Demoin and Rock river, which in the lowest stages scarcely afford water for empty keels; between the Prairie and St. Peter's numerous islands, bars, and ripples, render the navigation difficult to the smallest boats.

The Missouri, in its highest stages of water, (which is in April, May, June, and July,) will afford sufficient water for the largest steam boats to the mouth of Platte; and during the months of May and June to the Yellow Stone; keels carrying from 15 to 25 tons may ascend to the Yellow Stone during the months of August, September, and October; about the last of October or first of November, the running of ice checks navigation in that quarter.

The great obstructions of steam boat navigation in this river will be the immense quantity of drift wood in its highest stage; sawyers and planters that present themselves at every narrow pass of the river in a middling stage of water; and in the lowest stage, sand bars which are continually changing their locality, and render the navigation extremely difficult and dangerous even to small boats.

The following statement of distances from St. Louis to the most important points on the Mississippi and Missouri, with the price of freight to each place, will I hope be satisfactory:

Distance from St. Louis to the several points on the Mississippi.

	No. of miles from St. Louis.	Price of freight per hundred pounds.
From St. Louis to Fort Edwards, (Dem. river)	233	$2 00
do do Armstrong, (Rock river.) -	390	2 50
do do Crawford, Prairie du Chien	600	3 00
do do The mouth of St. Peter's -	864	5 50
To the several points on the Missouri.		
From St. Louis to Fort Osage . - -	320	3 00
do do The river Platte - -	600	4 50
do do Ancient fortifications -	980	6 00
do do Fort Mandan - - -	1540	10 00
do do Yellow Stone river - -	1880	12 00

The foregoing prices of freight are calculated for a single boat load: contracts may be made at this place for transporting large supplies to any of the above points at a lower rate.

I am, sir, &c. &c. &c.

J. M'GUNNEGLE. A. D. Q. M. G.

Brig. Gen. Thos. S. Jesup,
Washington City.

(35.)

Great Crossings, *July* 26, 1819.

Sir: My youngest brother has just returned from the western expedition, and left three steam boats about one hundred miles going on well up the Missouri with troops, military stores, &c. &c. say the Johnson, the Expedition, and the Thomas Jefferson; besides keels going on, and fitting out, at the mouth of the Missouri. That noble boat, the Calhoun, could not go on, on account of a defect in the boiler. She will be completely fixed, and next spring she shall lead the van to Yellow Stone. These disappointments and disasters we calculated upon, and the other means were sufficient for the expedition, and did not embarrass it one hour. The noble, the generous, the brave Col. Atkinson, is with the boats and troops. From the character I have received of this high-minded man, I shall ever feel proud that we can boast of such an officer. I now enclose to you a correspondence in part which took place between Gen. Jesup and my brother, which induces me to believe, that this good man, this gallant and faithful officer, has permitted his mind to be poisoned and operated upon by the hell-hounds of St. Louis, and cold water dashers on this expedition.

The whole country about St. Louis has been in an uproar ever since my brother arrived at St. Louis, or in that quarter, and he has overcome all difficulties and his enemies also. He was dogged by the civil authority, and even backed by the commanding officers with the regular troops; the warehouse at Belle Fontaine shut against the public provisions he wanted to deliver, and this in the face of his contract with government.

Notwithstanding these and ten thousand other difficulties, he triumphed; he kept fast hold of the public property and his steam boats, made his own warehouse, had his provisions inspected, and they were declared superlative. None better was ever delivered by any man; and, in fact, the over-weight amounted to twelve barrels. These facts are true, Col. Chambers' statement to the contrary notwithstanding. 100,000 rations have been delivered at Prairie du Chein,

sufficient for the troops till January, and provision now making for 100,000 rations in addition, which will complete the supply till next spring. 400,000 rations ordered up the Missouri to Council Bluffs, the last were in keel boats, on the 15th of July. And let complaints come from what quarter they may, let billows of trouble mountain high come like the storms of the north, every thing that human nature can do shall be done, and I shall go the City of Washington to complain, and state facts which shall put to rest any complaints. Sir, let me ask you, if you expected this expedition to go on in silver slippers? You did not; you expected trials and tribulations, difficulties and dangers; without these things very little credit would be merited.

You might have contracted with many who could have prepared a keel boat and navigated it to any point; but, where is the man who could make such arrangements, and in such time, as James Johnson has done? I confess, I felt pain in reading the letter of Gen. Jesup, and the complaint made, upon the representation on one side of the question, without explanation, or opportunity for explanation. The fact is, that thousands, more or less, and particularly individuals about St. Louis, will, no doubt, want to take from James Johnson the transportation contract, and to get it no doubt would agree to do it for that which would ruin any honest man. But, Sir, my brother has the means; he has the will; he has the integrity; he has the perseverance to execute your will, and he will do it at the price the government shall fix before any under-handed set shall have it after the great difficulties of the beginning has been overcome. We have pledged the four steam boats, and you have made advances, and we expect it as a matter of justice to serve you until the plan has completely succeeded. I look to you for justice, and, in such a great undertaking, no other kind of man will do. He must be a second Columbus; and will every Tom, Dick, and Harry, do to plan and execute such a vast concern? By the Eternal Gods! I say, if the means of transportation, &c. &c. had been committed to one in a thousand, the expedition would have failed, totally failed, but with such a man as Atkinson and James Johnson it never can fail. It may be retarded, it may look gloomy, but it cannot be defeated.

Change the hand that has prepared the means this year, and then comes another year of disaster. Of this there is no doubt. We must not be alarmed at every appearance of hard times. No, sir; the great head of the quartermaster's department must not take up unfavorable opinions and censure without explanation for the conduct of a sub-agent which may involve a few hundred dollars; and, while complaints are made on our side, take good care that no ground be given for complaints on the other side. How unfortunate it is that Gen. Jesup should take up these unfavorable impressions without having given any opportunity for personal explanation, and to have resorted to mild correctives; whereas, his letter is a harsh one, and founded on incorrect information. I am so well acquainted with the human mind, that I do not blame Gen. Jesup. It is natural that he should be alarmed at swelling of his transportation expenditure, part

of which must be carried to another year; but, to you, sir, we look for the corrective for that course which can alone sustain such an enterprize; and if half the advance of $180,000, as stated by Gen. Jesup, ought to have completed the enterprize, let such a plan be adopted of having no extra means, and the expedition is blown at the first little disaster. My brother thinks that Col. Atkinson's presence was most fortunate. He never desponded, and his uniform confidence in my brother alone sustained him. I was much pleased with two letters from Mr. Crawford, in which he stated, that he would be much pleased, if you would draw liberally, that he had in this country $1,500,000, and to withdraw it to the east would ruin this country. I am very apprehensive, from the letter of Gen. Jesup, that he will feel it his duty to go upon such a plan of economy as to prevent any man from the successful prosecution of the enterprize; and, secondly, that unless he should dismiss his unfavorable impressions, that he will feel unwilling to continue the contract to my brother, and it will be indispensable that the President and yourself should take such a course as will give us a fair chance to come out with honor and credit to ourselves, and profit and glory to the administration.

I now state it again and again, that we will, every one of us, bind ourselves to devote our lives and fortunes to the permanent establishment of the Yellow Stone expedition, the price may be what they please. As we are now so deeply involved in property and reputation in this affair, you must not be surprised at my sensibility on any unexpected complaint, and from the head of the quartermaster general's department, a man whose virtues, and talents, and patriotism, I so highly estimate and esteem.

I have written all this for your perusal. I wrote nothing to prejudice Gen. Jesup. I thought it my duty to keep you well advised of every fact in relation to this expedition, which must go on, and will be sustained by the American people. One thing you may rely on—the expedition will succeed, men and devils cannot prevent it. I shall visit Washington City as before suggested by me in my letter.

Your obedient servant, &c. &c.

R. M. JOHNSON.

The next season we intend to put on board each steam boat ten negro men, for the Yellow Stone expedition; say on the Calhoun ten, on the Expedition ten; the Johnson ten, the Jefferson ten. Total forty negro men, worth more than sixty white men, and these negro men we can furnish every one ourselves. We have twelve or fifteen on board now, and they are much more valuable than white laborers, and save each thirty dollars per month. Steam boats alone will do for the expedition; keels may do to help, but it is impossible to sustain the expedition with keels. The hands would nearly eat out the load in going to Yellow Stone and in return. James Johnson will meet with no more difficulty as to the civil authority. Suit has been commenced in the state of Illinois, where we shall make manifest the goodness of a claim for $50,000, and the

inequity of their claim. If you think it would do to divide the supply of rations, and the transportation contract, I am perfectly willing that James Johnson should have nothing but the transportation contract; the only fear is that the division may produce difficulties that might delay and even jeopardize the expedition. The fewer wills in direct, the better when that *will* is competent. I have no claim upon you but the transportation contract, and the army contract or the purchase of the rations is only wanted, for fear leaving it to others might prostrate your plans.

But these things can be subjects of thought and reflection.

Yours, &c. &c.

R. M. JOHNSON.

QUARTERMASTER GENERAL'S OFFICE,
20th April, 1820.

I certify that the foregoing is a true copy of an original letter addressed to the honorable John C. Calhoun, Secretary of War, and by him referred to the quartermaster general.

THOMAS JOHNSON,
Lieutenant 4th Infantry.

(36.)

Extract of a general order dated, Adjutant and Inspector General's Office, February 8th, 1819.

"The 6th infantry now at Plattsburg in the north division will be marched as soon as practicable to St. Louis, in the south division. The commanding general in the north division will adopt the measures for carrying this order into effect, and will cause the commanding general of the south division to be advised of their arrival in his division, with reports of the munitions, clothing, &c."

A true copy from the original order.

SAMUEL COOPER, jr.
Lieutenant Light Artillery.

ADJ. AND INS. GENERAL'S OFFICE,
April 18th, 1820.

ADJUTANT AND INSPECTOR GENERAL'S OFFICE,

15th March, 1819.

SIR: The Secretary of War directs that when you shall have made all the necessary arrangements for marching your regiment to St. Louis, as already ordered, you will repair to this place to receive the further views of the War Department relative to your future command, &c.

The sooner you arrive at this place the better, as it is probable the Secretary of War may leave this city for a few weeks early in April.

I have the honor to be, &c.

D. PARKER.
Adjt. and Ins. General.

Colonel H. ATKINSON,
6th Infantry.

GEORGE GIBSON,

Commissary General of Subsistence.

COMMISSARY GENERAL OF SUBSISTENCE,

Washington, April 27, 1820.

GEORGE GIBSON,

Commissary General of Subsistence.

CONTINUATION OF 37.

Invoice of subsistence stores delivered by Colonel James Johnson, of the state of Kentucky, to Thomas Hemstead, military storekeeper at St. Louis, Missouri territory, viz:

1079 barrels of prime pork,
214 do do beef,
1987 do do flour,
306 do do proof whiskey containing 10,292¾ gallons.
3 barrels of vinegar, containing 91½ gallons.
176 boxes of candles, containing 8310 pounds,
231 do of soap, containing 16979 pounds,
2 barrels and six bags, containing 4188 pounds of salt, equal to 83¾ bushels.

Received, St. Louis, Missouri territory, July 5th, 1819, of Colonel James Johnson, the full amount of the above invoice of provisions, viz: one thousand and seventy-nine barrels prime pork, two hundred and fourteen barrels of beef, one thousand nine hundred and eighty seven barrels of fine flour, three hundred and six barrels, containing ten thousand two hundred and ninety-two and three-fourths gallons of whiskey, three barrels containing ninety-one and a half gallons of vinegar, one hundred and seventy-six boxes of candles, containing eight thousand three hundred and ten pounds, two hundred and thirty one boxes of soap, containing sixteen thousand nine hundred and seventy-nine pounds, two barrels and six bags containing four thousand one hundred and eighty-eight pounds of salt.

THOMAS HEMSTEAD.
Military storekeeper at St. Louis, Missouri territory.

Invoice of subsistence stores delivered by Colonel James Johnson, of the state of Kentucky, to Thomas Hemstead, military storekeeper at St. Louis, Missouri territory, viz:

296 barrels of prime pork,
92 do do beef,
59,358 pounds do bacon,
940 barrels fine flour,
6,946¼ gallons proof whiskey,
2550 pounds candles,
5663¾ do soap.

Received, St. Louis, October 5th, 1819, of Colonel James Johnson, the full amount of the above invoice of provisions, viz: Two hundred and ninety-six barrels of prime pork, ninety-two barrels of beef, fifty nine thousand three hundred and fifty-eight pounds of bacon, nine hundred and forty barrels of fine flour, six thousand nine hundred and forty six and one-fourth gallons proof whiskey, two thousand five hundred and fifty pounds of candles, five thousand six hundred and sixty-three and three-fourths pounds of soap.

THOMAS HEMSTEAD,
Military storekeeper St. Louis, Missouri territory.

(38.)

DEPARTMENT OF WAR,
27th March, 1819.

SIR: The important movements on the Mississippi and Missouri render your presence necessary at St. Louis; to which place you will repair as soon as your official duties will admit. In the discharge of the duties of your office, as connected with the movements referred to, you are vested with full and discretionary powers; and it is confidently expected, from your energy and discretion, that the measures which you may adopt will be economical and effectual. You will keep the Department informed of all your measures. You will cause to be purchased the laws of the United States, with the acts since passed, for the use of Col. Atkinson, commanding the 9th Military Department.

I have the honor to be,
Sir, your most ob't serv't,
J. C. CALHOUN.

Gen. THOMAS S. JESUP,
Quartermaster General.

W.

For the whole transportation on both rivers, the Secretary of War offered Colonel Johnson $160,000. His whole outfit, including the price of his boats and their expenses, did not exceed $190,000. Colonel Johnson has his three steam boats left, and even admitting that they are depreciated in value, they are now worth $70,000.

The account would then stand thus:

The sum offered by the Secretary of War	$ 160,000
The value of Col. Johnson's steam boats	70,000
	230,000
Deduct the entire cost and outfit of the boats and their expenses	190,000
The sum cleared by Colonel Johnson on his contract in less than one year	$ 40,000

Memoranda.

In a voyage up the Missouri, by H. M. Breckenridge, Esq. the time occupied in his ascent from St. Louis to Fort Osage was	25 days
Thence to Council Bluffs	18 days
Difference of time in the performance of the two trips in favor of the upper part	7 days.

THE UNITED STATES, DR. TO KNOX, HOLDERMAN, & Co.

December 22, 1819.

For transportation of three (33 ton) keel boat loads of military stores from Belle Fontaine to the Council Bluffs, on the Missouri, at $3,200 for each boat, per trip			$ 9,600	00
For transportation of three (35 ton) keel boat loads of troops and military stores from the steam boat "Jefferson," near the mouth of *Petite Bonne Femme* Creek, on the Missouri, to Council Bluffs, at $3,400 for each boat, per trip			10,200	00
For detention of the keel boat "Wild Cat," one patroon and thirteen hands, at Martin Cantonment, five days, at $22 per day			110	00
For detention of two keel boats, the Croghan and Eliza, two patroons and thirty-four hands, at Martin Cantonment, seven days, at $56 per day			392	00
			$ 20,302	00
From which deduct the following articles furnished by the United States to the boats' crews during the trip, viz:				
For 1 barrel beef at	$ 20	$ 20		
4 do flour at	10	40		
2 do hard bread at	8	16		
126¾ gallons whiskey at	87½	110 91		
713 lbs. bacon at	25	178 25		
		$ 365 16		
On account of the quartermaster's department for transportation of the above subsistence stores from St. Louis to the Council Bluffs 3,252 lbs. at 5½ cents per pound		179 96	545	12
			$19,756	88

Received, at St. Louis, December 22, 1819, of Capt. J. McGunnegle, assistant deputy quartermaster general, nineteen thousand seven hundred and fifty-six dollars and eighty-eight cents, in full of the above account.

KNOX, HOLDERMAN, & Co.

The within is a true copy from the original in the accounts of Capt. McGunnegle, assistant deputy quartermaster general.

TREASURY DEPARTMENT,

Third Auditor's Office, April 24, 1820.

PETER HAGNER, *Auditor.*

Note by the Quartermaster General.

35 tons at 5½ cents per lb. would amount to	$ 3,850
For 35 ton boats the quartermaster's department paid	3,400
Difference	$ 450

So that less than thirty-one tons were paid for.

THE UNITED STATES To JOHN O'FALLON, DR.

December 1, 1819.

For transportation of sundry packages of Indian presents from St Louis to the Council Bluffs, on the Missouri, weighing 8,260 lbs. at 5½ cents per pound, per invoice herewith $ 454 30

The assistant deputy quartermaster general, Capt. McGunnegle, will pay the above account of four hundred and fifty-four dollars thirty cents.

H. ATKINSON
Col. 6th Inf. Com. 9th Mil. Dept.

Chargeable to the Indian Department, Quartermaster General's Office.

Received at St. Louis, December 1, 1819, of Capt. McGunnegle, assistant deputy quartermaster general, four hundred and fifty-four dollars and thirty cents, in full of the above account.

JOHN O'FALLON.

The within is a true copy of the original on file in the accounts of Capt. McGunnegle.

TREASURY DEPARTMENT,
Third Auditor's Office, April 26, 1820.
PETER HAGNER, *Auditor.*

THE UNITED STATES To JOHN O'FALLON, DR.

December 1, 1819.

For transportation of eight hundred six pound shot from Belle Fontaine to the Council Bluffs, on the Missouri, weighing 4,800 lbs. at five and a half cents per pound, per invoice herewith $ 264 00

Received at St. Louis, December 1, 1819, of Capt. McGunnegle,

assistant deputy quartermaster general, two hundred and sixty four dollars, in full of the above account.

JOHN O'FALLON.

The above is a true copy of the original on file in the accounts of Capt. J. McGunnegle.

TREASURY DEPARTMENT,
Third Auditor's Office, April 26, 1820.

PETER HAGNER, *Auditor.*

WASHINGTON CITY, *April* 18*th*, 1820.

SIR: It never was my intention to have noticed Colonel Johnson's letter of the 21st September last, in answer to mine of the same date; but, agreeably to your request, I will state the reasons why this boat in question was not employed at the time she was reported; and will also point out the incorrect statement of Colonel Johnson in relation to this boat. He states she was sent to St. Louis and reported to me at the time specified in his letter of the first of September, (on Sunday the 29th August.) I must repeat, what I have before stated to him, that this boat was not reported to me before Tuesday the 31st of August, and, on examination, I found her deficient in oars, poles, sockets, and bottom planks, which were necessary to preserve the loading from water; and, on inquiry of his agents, Messrs. Snell and Dorr, in relation to the state of her crew, they informed me that they had but 7 or 8 hands engaged. At least 15 hands were necessary for the navigation of this boat, beside they were entirely destitute of provisions for the voyage. I admit objections were made to her size, knowing that it was impossible that she could pass the Desmoin rapids at the then low state of the river. I informed Mr. Snell that it was absolutely necessary that he should procure a small boat of ten or fifteen tons to light her over the rapids if she took this loading. He was sensible of the necessity of procuring a boat of this description, and attempted to purchase one, but could not succeed, being without funds he was unable to purchase on credit. Finding there was no probability of those stores being started in any reasonable time by Colonel Johnson's agents, and being ordered to have them in motion on that day, two other boats were employed, loaded, and in motion early on the following morning. Colonel Johnson states that "upon trial this boat was found to be of a very suitable size for the cargo that was given to another;" in this, his information is incorrect. His boat was only able to take 33 tons. Transportation was required for 45 tons, (see my letter of the 27th of August,) 44¾ tons was the actual amount of freight put on board the two boats employed. It will be admitted that Mr. Hemstead attended to loading all the provisions furnished by Colonel Johnson during the last year, but it is

denied that he offered, or that I prevented his loading the boat referred to by Colonel Johnson.

I am, sir, &c. &c.

J. M'GUNNEGLE.

Brig. Gen. THOMAS S. JESUP.

No. 8.

Statement submitted to the Referees in the case of Colonel James Johnson, of Kentucky, by Brigadier General Thomas S. Jesup, Quartermaster General of the Army.

To secure to the nation some of the advantages of the treaty which terminated the late war with Great Britain, the government of the United States determined to establish a line of posts from the Lakes to the Arkansas, which, by occupying commanding positions in the vicinity of the several powerful tribes of Indians who inhabit that immense region, should, by impressing them with an idea of the power and resources of the United States, influence their policy, control their operations, and induce them to exclude from their territories foreign traders and emissaries. Three regiments were selected for this service, and the most efficient arrangements were immediately made by the several military departments for the accomplishment of the great object.

Colonel Johnson, of Kentucky, aware of the importance of the proposed plan of defence to the Western country, and anxious, as he himself declared, to have his name connected with it, made proposals for the transportation.

Some months before the contract was entered into with the Quartermaster's department, he stated to the Secretary of War, (see his letters,) that he had several steamboats, which he was anxious to employ in the service of the government. He professed to be acquainted with the navigation of the Missouri and Mississippi, and declared that his boats were well adapted to that navigation.

The Quartermaster General, sensible of the importance of military responsibility in all connected with operations so extensive, was at first averse to the contract; but, holding the character of Col. Johnson in high estimation, and having the most perfect confidence in him as a man of business, he consented, at length, with the approbation of the Secretary of War, to employ him. Accordingly, a contract was entered into on the 2d day of December, 1818, between the parties; which stipulates—

1st. That Col. Johnson shall furnish *two steamboats* calculated to navigate the Mississippi and its waters, and to place them subject to the orders of the Quartermaster General by the first day of March, 1819, for the transportation of provisions, &c.

2d. In case this mode of navigation should succeed, and it should be found at any time that two *steam* boats should not be sufficient to place at the proper periods, and when the state of the waters shall admit of it, all the provisions, &c. *then*, on due and reasonable notice, to provide forthwith one or more steamboats, as the case may require, to aid in the said transportation.

3d. If, upon experiment, it shall be found that any difficulty exists, as to the entire transportation of the provisions &c. in this way, *then* in a reasonable time, say thirty days, to provide a sufficient number of keel boats, and to transport the same by them.

On the part of the government it stipulates:

1. To furnish a corporal's guard for the protection of each boat thus employed, and the property laden therein.

2. To make a reasonable compensation, taking into consideration the hazard attending the navigating of waters at points so distant, and heretofore unexplored by such mode of navigation, and the ordinary rates of transportation, as the basis of such allowance; and, also, such reasonable and further allowance as may be equitable and just, provided, that, if in the arrangements and operations of the government, the said steam boats should be detained in their destination from the want of concentration of the articles to be transported *or otherwise*, and not imputable to the negligence of the said James Johnson.

3. To make from time to time advances, &c.

4. In case of disagreement or difference of opinion between the parties as to the allowance or compensation, that the matter shall be settled by arbitrators.

These are the principal provisions of the contract. How far they were complied with on the part of Colonel Johnson, the testimony taken in this case has fully shewn.

The operations of Colonel Johnson under his contract with the quartermaster's department were confined to St. Louis on the Mississippi as the place of departure, and the several posts established and to be established on the Arkansas. The Missouri and the upper Mississippi rivers as the points of deposit.

He was bound to place two steam boats subject to the orders of the quartermaster general by the 1st day of March, 1819. And these boats were to be calculated for the navigation of the Mississippi and its waters. Was this part of the contract complied with? The testimony taken in this case proves that it was not. Colonel Johnson's letters show that the boats were in his own employment late in the month of May, and the testimony of Captain M'Gunnegle and Maj. Hemstead shows that the Jefferson and Johnson were in his employment late in the month of June. The boats too were not calculated for the navigation of the Missouri. The Jefferson particularly had too great a draft of water. Let it not be said that the difficulties presented by Missouri itself caused the failure; for it had been previously proven, by a voyage to Chariton, performed by that very Independence, which, by the testimony of Captain O'Fallon, had been towed

by the Expedition over the falls of Ohio, that the Missouri was well adapted to steam boat navigation. It appears, also, by the testimony of Col. Chambers, that, at a time when the Expedition was unable to progress and was compelled to fall back to her anchoring ground, the Independence passed up the Missouri at the rate of one and a half knots an hour. This one fact is worth more in the investigation than volumes of vague opinion.

Colonel Johnson endeavors to shelter himself under the circumstance of the non-arrival of Colonel Atkinson and his regiment, and of the quartermaster general; but this will not avail him. It should be recollected that he was connected with the expedition as *contractor merely*, and had nothing farther to do with the operations than to comply with his contract and obey the orders received. It was not even necessary that he should be informed of the plan. He assumed to himself, however, the province of judging what was proper to be done and by that means produced inconceivable delay and difficulty. It was never contemplated that the expedition should wait the arrival of the 6th regiment, but the plan was for the rifle regiment to move whenever the depot of four hundred and eighty thousand rations, which Colonel Johnson, as subsistence contractor, had been required to establish, should be completed.

There were at St. Louis officers of every department: General Bissel, who was senior in rank to General Jesup, and Colonel Atkinson, commanded.

Captain M'Gunnegle, one of the most efficient officers of the army, was at the head of the quartermaster's department, and had not the contracts both for provisions and transportation been rendered void, by Col. Johnson's own statement, the expedition might have progressed without either Col. Atkinson or the quartermaster general indeed, the visit of the latter to St. Louis was not so much to direct the operations as to provide for any failure.

The claims of Colonel Johnson which are the subject of reference, are contained in an account which he has exhibited, and the principles of that reference, in a paper signed by Richard M. Johnson, as agent for James Johnson, and the quartermaster general, as agent for the government.

The claim embraces three items, viz:

1st. Detention of the steam boats at the mouth of Missouri.

2d. Detention on the Missouri.

3d. The price of transportation on the Missouri.

They will be examined in order, beginning with that which grows out of the detention at the mouth of Missouri.

That detention did not proceed from the movements or operations of the government, or the neglect of any of its agents, as stated by Col. Johnson, but from the following causes:

1st. The failure of Col. Johnson to furnish the provisions necessary for the expedition, agreeably to his contract.

2d. His failure to deliver at St. Louis, in a reasonable time, the ord-

nance, medical stores, and clothing, for the expedition, which he had engaged to transport from Pittsburgh to St. Louis.

3d. His difficulties with the civil authority of the Missouri territory.

Col. Johnson endeavors to fix the blame of detention on Col. Chambers, and other officers at St. Louis. But what are the facts as established by the testimony?

Six weeks after the depot of provisions should have been completed at St. Louis, Col. Johnson arrived with but a partial supply. He offered those provisions, but was prevented from delivering them by some difference with the civil authority—the nature of which it is not necessary *here* to investigate. What was the conduct of the officers on that occasion? Did they make difficulties? They certainly did not. For the convenience of Col. Johnson, they consented to receive the provisions at a remote, and to *them* inconvenient, place, opposite the mouth of Missouri, in the state of Illinois. It is true Col. Chambers refused to turn his rifles on the civil authority; but he felt and acted on that occasion as an American soldier should always feel and act.

He felt that the civil power was paramount to the military. It was sufficient for him to know that there was a civil process, and a civil officer to execute it. Besides, Col. Chambers was not a commissary, and had no connection whatever with the subsistence department. The officer of that department, (Major Hemstead,) was present. He caused no difficulty, but made the most prompt arrangements for the inspection of the provisions, and Col. Chambers gratuitously furnished a subaltern's command to aid in that service.

But Col. Johnson contends, and his leading witness (Crow) testifies, that a considerable part of the delay was caused by the demand to have the provisions repacked and resalted. Let it be admitted, and what does it prove? It has been abundantly shewn, by the testimony, that Col. Johnson had engaged to deliver, at a certain time, a certain quantity of provisions; the public service required that they should be delivered at the time stipulated. They were not so delivered: the contractor, therefore, by his own act, had rendered the contract void.

When he offered the provisions, it was known to the officers of the government that they were deficient in quantity, if not in quality, and that a very considerable additional supply must be provided before the expedition could move.

And as the contract, both for provisions and transportation, had become void by the act of the contractor, it was their duty to make the best arrangements for the government. Col. Johnson was in the market as any other individual would have been, and as the merchants of St. Louis actually were: his failure put it out of his power to demand that his provisions be received—it was competent for the commissary to receive them or not; and hence he had a right to prescribe the mode in which they should be received: he did prescribe that mode, and Col. Johnson, knowing that he had no claims under his contract, acquiesced.

But, had the provisions been in readiness, the expedition could not

have moved without the ordnance, medical stores, and clothing. Col. Johnson had, by a separate contract, engaged to deliver them at St. Louis; they were shipped on board the steam boat Jefferson in the month of February, and were not delivered at St. Louis until late in June. Col. Johnson contends that "the breach of any contract, to influence the rights of the parties, must be material; if immaterial, if it has been attended with no prejudice to the party who complains of it, he cannot avail himself of it." The proposition is admitted to be true, in its utmost extent, but it is not applicable to the present case. Here was an expedition of more importance, and involving greater expense, than any other ever undertaken by this government in time of peace. The country through which it was to pass was a wilderness, entirely without resources; to make success certain, it was necessary that supplies, for at least a year, should either precede or accompany the expedition.

Arrangements were made to insure those supplies; and, in order that the transports which were to convey them might not be embarrassed or delayed by the troops, a detachment of the rifle regiment was sent to Cow Island, (Isle aux Vaches,) on the Missouri, four hundred and twenty miles above St. Louis, during the autumn of 1818.

Col. Johnson was connected with the expedition in a *three-fold* capacity. Under one contract he had engaged to transport from Pittsburg to St. Louis the clothing, ordnance, and medical stores; under another, to supply the provisions; and under a third, to furnish transportation; a compliance with all was necessary to the timely movement of the expedition. A failure in either was sufficient to derange the plan.

It was expected by the government, that the post at the Mandan villages would be occupied in the course of the year 1819. And, from what has been actually accomplished, it is evident that had Col. Johnson complied, in good faith, with his several contracts, so as to have enabled the officers of the quartermaster's and commissary's departments, to forward the transports and supplies in the month of April in place of July, the plan would have been accomplished during *that season*, and the expense of one year's operations have been saved to the nation. It therefore inevitably follows, that the breach of the contract was material, and that it not only *jeopardized* the expedition, but has *involved the country in an enormous additional expense.* It is further contended, by Col. Johnson, and his friends for him, that if a party voluntarily accept of the performance of a contract at a different time or place, from that which it stipulates for, he waives all right resulting to him from the non-performance, and is precluded from taking advantage of it: nothing can be more true, but it is denied that the violated contracts of Col. Johnson were at any place, or any subsequent time, voluntarily revived. It appears, by the testimony of Col. Gibson and Maj. Hemstead, that the contract for provisions has not to this day been complied with, and that the deficiency was supplied by purchase by the officers of the commissary's department; and Capt. McGunnegle's evidence shows that he, as well as the quar-

termaster general, considered the contract for transportation void, and that Col. Johnson was continued in service, not in pursuance of his contract, but because he had by *various means* obtained large sums in advance from the government; and it was a favor done him, to permit him in that way to diminish the balance against him.

Notwithstanding the enormous advances which had been made to Col. Johnson, (an amount at least one hundred thousand dollars more than the whole expedition would have cost had he not been employed,) *it was ascertained beyond a doubt*, that the want of pecuniary means, (see Col. Johnson's letters,) to provide *keel boats in time* to supply the place of his *defective steam boats*, would produce a failure of the expedition. With this knowledge, and in this state of things, it became the imperious duty of the quartermaster general to provide means of transportation from other sources as a precautionary measure, and as the alternative alone calculated to insure the ultimate success of the expedition.

It is believed, that it has already been shewn, that Col. Johnson *wholly failed* to comply with the terms and conditions of his contract for transportation, both as to the time and the means stipulated for in that contract. Indeed, it is not even denied by himself; and if the grounds assumed and contended for by him and his friends be admitted, that his failure as a contractor with the subsistence department, and which, as has been shewn, contributed to, if it did not produce entirely the detention at the mouth of Missouri, is not to affect his contract for transportation, then the principle, absurd as it is, must also be admitted that a man may take advantage of his own wrong. And the conclusion irresistibly follows, that it was the original purpose of Col. Johnson, because it was his interest, *not to comply with his contracts*. The benefit of the notice provided for in a contract thus violated by the contractor, and at such a juncture, could neither be claimed or conceded. The exigency of the public service was paramount to the equitable claims (legal he had none) of a failing contractor.

But had the detention of the steam boats been occasioned by the movement and operations of the government, or the neglect of any of its agents, even then, the ground assumed by Col. Johnson and his friends would not be tenable. It is contended by them, that the true measure of compensation for the detention is the amount which the boats would have earned on the Ohio and the lower Mississippi; and they take the rates of the preceding year as the basis of their calculation. Now, it is evident, that Col. Johnson (had his boats been employed at that time between New Orleans and Louisville) could only have availed himself of the business of that period; he could have derived no advantage from the high rates paid the preceding year. And it has been completely proven, by his own witnesses, (see the testimony of Col. Morrison and of Col. Kemper,) that steam boat navigation was entirely suspended on the Ohio and Mississippi during the latter part of the summer, and the whole of the autumn of 1819. In-

deed he assigns this as one of the causes (see his letters) of his failure in his contract with the subsistence department; hence, had his boats been at that time between New Orleans and Louisville they could have earnt nothing; therefore, according to his own shewing, he is entitled to nothing either for detention at the mouth of Missouri or on the Missouri.

But, concede the right to Col. Johnson of charging for the detention, (which is not intended,) and how is the amount which he has charged to be reconciled with the provision of his contract in relation to detention, "and also such *reasonable* and further allowance as may "be *equitable* and *just*, provided that if, in the arrangements and ope-"rations of the government, the said steam boats should be detained "in their destination from the want of concentration, &c. or other-"wise, and not imputable to the negligence of the said James John-"son."

What proportion does the charge of 533⅓ dollars per day bear to the real value of Col. Johnson's two steam boats, or to the profits which the capital vested in them would produce, if employed in any other business? The daily expense of the largest class of frigates on the war establishment will not much exceed the one half of the amount charged by Col. Johnson for the detention of his two steam boats.

The next point to be considered is the rate of transportation to be allowed to the Council Bluffs.

In considering this subject the referees have nothing to do with the rate of *steam boat* navigation at the time of the contract, or with the depreciation of steam boat property at the present time. Col. Johnson must be considered as a contractor merely; not one whose services had been solicited by, or considered of essential importance to the government, but one who had solicited and had been soliciting that employment for months previous to the date of the contract.

The colonel contends that, by the terms of his contract with the quartermaster general for transportation, he is entitled to claim and receive a reasonable allowance, or compensation, for such transportation, taking the ordinary rates, &c. as the basis of the allowance, and that the ordinary rates of transportation at the date of the contract ought to govern in the adjustment of his claim. To this rule no objection is made, but the selection and application of those ordinary rates are objected to. He contends that the ordinary rates of transportation by keel boats on the Missouri, were not the rates contemplated in his contract. If this *mode*, and these *rates*, of transportation were not contemplated, and to govern, it would be difficult to determine what others should govern. There was not, at the time the contract was entered into, any other than keel boats navigating the Missouri. At all events, that river was not then navigated by steam boats; hence, it was clearly and manifestly the ordinary rates of transportation by keel boats which the contract refers to as the basis of the allowance contemplated to be made.

It was difficult, at the time, to fix definitively the amount to be allowed. It was intended that the compensation should be liberal,

but it was never contemplated that it should much exceed the highest rate paid to others; for the highest rate of freight, whether on rivers or on the ocean, always includes the risk.

The rates on the Mississippi and Arkansas were known; they were also known as high as Fort Osage on the Missouri, and it was further known that the price above Fort Osage depended upon the wages paid to boatmen, the price of keel boats, and the expense of their equipment. As these were all matters susceptible of proof, and of calculation, neither party supposed that there could be any difficulty in ascertaining the usual and ordinary rates.

By comparing the accounts presented by Colonel Johnson with the testimony in this case, it will be seen that he has charged within a quarter of a cent three times the amount paid by the quartermaster's department to others for similar services. This certainly is not reconcileable with any principle of justice; it is not warranted by any clause in his contract, nor can it be justified by any known rule of the government, or of individuals. The clause in the contract touching the question of compensation, or allowance to be made for the transportation appertaining to the western expedition, provides, "And whereas," &c.

The very high charges of Col. Johnson, as appears by his statement, are made, 1st, In consequence of his duplicating the number of his steam boats, and holding in readiness an outfit of keel boats. 2d, The dangers of the navigation, and the circumstance of boats on the Missouri not being capable of taking more than two thirds of their tonnage. 3d, The depreciation of the value of steam boat property; and 4th, His enterprise and patriotism.

Before we examine these several points, it may be proper to make some inquiry in regard to the usual and ordinary rate of transportation on the Missouri, at the date of the contract. Captain O'Fallon and Captain M'Gunnegle testify that the rate from St. Louis to Fort Osage, in 1818, was three cents per pound. This is confirmed by the letter of Mr. M'Kenny, of the Indian department, and the certificates of Messrs. Kennerly and Holderman; and it appears from the contract made with Holderman, and the testimony of Captain M'Gunnegle, that the rate between those places had not changed in 1819.

The distance from Belle Fontaine to Fort Osage is three hundred and twenty miles, and from Belle Fontaine to Council Bluffs seven hundred and twenty; the rate of the former applied to the latter, according to the distance, would make the price of transportation six and three-fourth cents per pound. If further testimony be necessary to establish the rate of transportation to Fort Osage, prior to the contract with the quartermaster's department, and to show that Col. Johnson was acquainted with that rate, it will be found in his contract of 6th December, 1817, with Mr. George Graham, acting Secretary of War, which *he* has exhibited as evidence in this case, and to which the attention of the referees is respectfully solicited. It appears from that document that Col. Johnson contracted to deliver pro-

visions at Belle Fontaine and Fort Osage, during the year 1818, at the former post for thirteen cents seven and an half mills per ration, and at the latter for nineteen cents. A difference for the transportation and the risk not only of the transports, but of the provisions, also, of five cents two and an half mills per ration. It appears, by the testimony of Col. Gibson, that a ration weighs about two pounds and an half, which would make the transportation from Belle Fontaine to Fort Osage but two cents and one mill per pound. At this rate, (which was certainly better known to Col. Johnson, at the date of his contract, than any other, and which may be fairly inferred to be "the usual and ordinary rates" contemplated by the contract as the basis of the allowance to be made,) the price to the Council Bluffs would be four cents seven and one-fourth mills per pound.

There is a third mode of determining the price of transportation on the Missouri, viz: by estimating the price of keel boats, the wages paid to boatmen, and the expense of the outfit.

Captain M'Gunnegle testifies that a boat of forty tons, with its outfit, including the wages of hands, and the entire expense of a voyage to the Council Bluffs, would cost about three thousand three hundred dollars: if it deliver thirty-five tons, the price would be precisely five cents per pound. It is admitted that the rates on the Missouri, at the time the contract was made, are to be taken as the basis of the allowance, and, in order to determine the just and reasonable compensation of Col. Johnson, there should be added to those rates the extraordinary risk. The rates on the Missouri have been established by three modes, and the only modes by which it was possible to establish them; and, although it would be perfectly fair to take the medium, or even the lowest of those rates, as the basis of the allowance, (for the highest rate always includes the risk,) yet, as it is intended that the compensation shall be liberal, the highest rates, 6¾ cents, will be assumed as the basis. Col. Johnson states the average loss of boats on the Missouri, (see the statement of Sebree,) to be one in ten; let it be conceded, and the risk will then be, by his own shewing, ten per cent. Col. Johnson has stated, (see his letters dated the ——,) that his steam boats Jefferson and Johnson, with their outfits, cost nearly one hundred thousand dollars. Suppose the Expedition, with her outfit, to have cost fifty thousand, and let twenty thousand be added for the reserve of keelboats, (which, by the way, he never had,) and twenty thousand for contingencies, and his whole outfit, including the price of his steamboats, would amount to 190,000 dollars. Ten per cent. on that sum, (the risk as estimated by Col. Johnson himself,) would be 19,000 dollars. This added to the 6¾ cents per pound, for the stores actually transported by him, will make the greatest amount of compensation to which he can possibly be entitled under his contract.

Col. Johnson has endeavored to show that the ordinary rate of transportation on the western waters was much higher, at the date of his contract, than during the year 1819. This was undoubtedly the fact, as it respects the Ohio and the lower Mississippi; but that it is

not the fact, as respects the Missouri as far as Fort Osage, has already been shewn; indeed, if there was any difference, the price on the Missouri was higher in 1819, than it had been in any previous year. This is manifest from the letter of Mr. Bronaugh, of the Indian department, which has been submitted by Col. Johnson as evidence in this case; and if the price from St. Louis to Fort Osage was higher that year than it had been the preceding year, it would be difficult, by any process of reasoning, to make it lower to the Council Bluffs.

Colonel Johnson has endeavored to fortify his exorbitant demand, by the testimony of Major Hall, Captain O'Fallon, Major Sebree, Captain Offutt, General Taylor, Colonel Morrison, John H. Piatt, and others. These gentlemen and their testimony shall be noticed in the order in which they are named: and first of Major Hall. This gentleman testifies to the difficulties of the Missouri, and states from eight to twelve cents per pound to be the price for keel boats, and from eighteen to twenty as the allowance which he thinks Col. Johnson should have for the transportation done by his steam boats. But when the major is cross examined he declares, (see his statement) that he has no knowledge whatever of the subject; he has, therefore, by his own acknowledgment, sworn to that of which he knew nothing, and has, consequently, completely set aside his own testimony. Captain O'Fallon was employed, during the year 1819, by the quartermaster's department as a transporter of provisions and stores to the Council Bluffs. He received, as appears by the testimony of Captain McGunnegle, and the certificate of Mr. Hagner, 5½ cents per pound, and he was anxious to engage for the ensuing season at the same rate. He thinks Col. Johnson should receive from 18 to 20 cents to the Council Bluffs. It is difficult to account for the opinion of Captain O'Fallon; he is certainly an honest and honorable man, but most men are liable to be led into error by considerations of interest. Captain O'Fallon is sutler to the troops at the Council Bluffs, and receives, as appears by the testimony of Col. Chambers, a certain per centage on the first cost of his merchandise and the transportation; he is, therefore, an interested witness, and his testimony should be received with great caution.

Major Sebree is an honest and correct man, but, in the present case, he is not a competent witness. He is the partner of Col. Johnson, (see the certificate of Mr. Hagner,) and it is not proper that he should be admitted as a witness in his own case; it is a maxim in law that a man shall not be judge in his own cause; the reason applies equally to a witness. However, his statement may go for what it is worth.

Capt. Offutt is, or was, a partner of Col. Johnson in the steam boat Jefferson; his statement is not sworn to, and cannot be admitted as evidence.

Gen. Taylor, Col. Morrison, and John H. Piatt, are all gentlemen of respectability; they possess large fortunes, and, it is believed, that if fifty cents were offered, neither of them would take a con-

tract for transportation; besides neither of those gentlemen have ever seen the Missouri, and therefore are not competent to give an opinion; to those who have seen that river it is well known that its difficulties, like objects seen through a mist, are magnified by distance and obscurity.

Col. Johnson appears to rely much on the statements of Major Sebree, and Wm. D. Hubble; but those witnesses prove too much; Major Sebree declares, that boats which will safely freight from ninety to one hundred tons on the Ohio and the Mississippi, will not carry more than fifty or sixty on the Missouri; that James Johnson transported thirty-five tons of the cargo of the Jefferson, and that the quartermaster's department transported the remainder; that Col. Johnson's was a fifty ton boat; that he had reserved forty tons of the cargo, but could put but thirty-five tons on board; and that the boats of the quartermaster's department were only half loaded, and were double manned.

Hubble declares that boats can carry only half the cargo on the Missouri which they carry on the Mississippi. The Johnson, he says, would carry ninety tons on the Mississippi; the Expedition two hundred; and the Jefferson two hundred and twenty-five.

The account exhibited against the government by James Johnson, contains the following items, to which the attention of the referees is respectfully requested; viz:

145 tons transported by the Expedition,
145 tons transported by the Jefferson,
75 tons transported by the Johnson, and
300 troops transported on the three boats.

The troops were distributed according to the capacity of the boats; there were about 60 on the Johnson, and 120 on each of the others.

The Johnson was the only boat of the three adapted to the navigation of the Missouri; it would, as appears by Col. Johnson's witnesses, carry ninety tons on the Mississippi; and, agreeably to Col. Johnson's charge, it carried 75 tons and 60 men on the Missouri, (equal to a full freight.) The Jefferson, agreeably to Col. Johnson's account, carried 145 tons, and at least 120 men, when she failed; 35 tons, by major Sebree's account, were transported by Col. Johnson, leaving 110 tons, and 120 men, to be transported by the quartermaster's department. It appears, by the testimony of Capt. McGunnegle, that four boats were employed by the quartermaster's department. Those boats were necessarily employed by their actual tonnage; because the season had so far advanced that it was necessary to move with the utmost despatch, and it was not known, when they were engaged, whether there would be full loads for them. Those four boats, however, transported the 110 tons and 120 men; they were 30 and 33 ton boats, and there was an average of 27½ tons and 30 men to each boat: but, say the witnesses, boats on the Missouri cannot carry more than half their tonnage; and, says Major Sebree, the quartermaster's boats were but half loaded.

What is the conclusion which necessarily results from this testimony and these facts? It is either that Colonel Johnson has presented an account for services which he never rendered, or that his witnesses have stated that which is not the fact. The Colonel has his choice of difficulties, but the truth of one of the propositions is inevitable. Captain O'Fallon saw one of the boats at Cow island, which, as he supposed, contained not more than twenty tons; this may be true, but it is denied that it proves any thing. The boats from the Jefferson, as has been shewn, transported troops as well as supplies, and it will readily occur to the referees, that 120 men could not make a long voyage without provisions, and that very considerable issues must have been made on the way.

It has been shewn, by the testimony of Captain M'Gunnegle, Captain O'Fallon, and others, that the price of transportation to Fort Osage had for several years been three cents per pound, and that in 1819 it was from three to three and three fourths cents per pound, and to the Council Bluffs five and an half cents. Colonel Johnson has endeavored to make the difficulties above Fort Osage appear greater than those below; but the fact of transportation being performed to the Council Bluffs by persons well acquainted with the river, at a price so much less in proportion to the distance, than that paid to Fort Osage, proves, beyond a doubt, that the difficulties at least do not increase.

But it is contended that the boats employed by the quartermaster's department were paid according to their tonnage, and that they carried half loads only. Captain O'Fallon's testimony, and the statement of Colonel Johnson's partner, Major Sebree, are relied on to establish the fact.

It has, however, been already shewn, that only four boats were employed by the department in transporting the stores of the Jefferson. By the testimony of Captain M'Gunnegle and the certificates of Mr. Hagner, it appears that the sum of thirty-four hundred dollars was paid for those boats, an average of less than thirty-one tons, at five and an half cents per pound.

It has been already shewn, by the account presented by Colonel Johnson, (see it,) that they transported 110 tons and about 120 men, equal to their full freight. Hence it follows that the price paid by the quartermaster's department did not exceed five and an half cents.

Here it may be proper to call the attention of the referees to the fact, that Colonel Johnson has himself charged for the freight of those boats, and not content with the usual rates, he has charged for services performed not by him, but by the government, nearly three times the price actually paid.

The Colonel urges, in support of his enormous claim, that he *duplicated* the number of his steam boats and held in readiness a reserve of keel boats, neither of which was the fact. Three steam boats only were required, three only tendered to the officers of the government. If the Colonel provided more, it was an act done in his own wrong, for which the government cannot, ought not, to be made ac-

countable. In providing those three boats he was put to no inconvenience, for, as appears by Col. Richard M. Johnson's letters of 17th and 24th of November, 1818, he had them in readiness, or in a state of preparation before he made his contract. The Calhoun, which Colonel Johnson says was intended for the service of the government, had not power sufficient to ascend the Mississippi, (see Colonel Johnson's letter 26th July, 1819,) she failed, not in the service of the government, but in the service of Colonel Johnson. The Colonel would have saved much trouble both to himself and the government, had he recollected in time that he was merely a contractor, that it was his province not to plan, but to execute such parts of the plan as might be committed to him; he forgot himself, and assumed the character of *director*, and must submit to the consequences. He had not a reserve of keel boats, as is manifest from his correspondence with Captain M'Gunnegle after the failure of the Jefferson.

2d. *The dangers of the navigation and the circumstance of boats on the Missouri, not taking more than one half or two-thirds of their actual tonnage.*

The dangers of the navigation have been already shewn by Colonel Johnson's witnesses to be 10 per cent. That sum the department is willing, and ever has been willing to allow him in *addition to* the ordinary rates, and surely he cannot complain if his compensation be determined by the rule which he himself has established.

With regard to freight, it has been shewn that the grounds assumed by Colonel Johnson are not correct. The Johnson transported a full cargo. The Expedition and Jefferson each 145 tons, in addition to the troops. Some of Colonel Johnson's witnesses estimate those boats at from two hundred to two hundred and twenty-five tons, but the Colonel, who must be supposed to be better acquainted with them than his witnesses are, declared, to the Secretary of War, in a letter dated 12th of February, 1819, that his boats would carry from 100 to 150 tons, and in a report to the quartermaster general, dated 30th May, 1819, he estimated the Expedition and Jefferson at 125 tons each, and the Johnson at 75 tons. But for that report neither of the large steam boats would have been permitted to proceed, for, until it had been received, the quartermaster general considered the Expedition and Jefferson too large for the Missouri, and had determined not to receive them; if, therefore, those boats are of the tonnage which Colonel Johnson now endeavors to make it appear they are, he practised an imposition on the government in pushing them upon it.

3d. *The depreciation of steam boat property.*

For that depreciation, if it has actually occurred, the contract does not provide, and Colonel Johnson has not even an equitable claim unless it can be shewn that the government would have derived the advantage, had the property appreciated.

4th. *His enterprize and patriotism.*

It would be difficult to determine what bearing the character of Col. Johnson can have upon the case. His *patriotism*, on which so much stress has been laid, makes no part of the matter at issue; and,

even admitting it did, to the fullest extent to which he and his friends seem to claim for him, it would not justify the *extraordinary* and *exorbitant* charge which he has made for it. Why should his character be introduced? His *patriotism* is admitted to the fullest extent, but it cannot be allowed to affect the price of his transportation; indeed, it is believed that this is the first instance in which *American patriotism* has been considered a *marketable article.*

It is believed that it has been completely established by the testimony:

1st. That Colonel Johnson failed to comply with his contract, both as to the time and the means stipulated in that contract, and that the failure has been productive of essential injury to the public service.

2d. That the detention at the mouth of the Missouri was not occasioned by the government or its agents, but by the neglect or failure of Col. Johnson.

3d. That the detention on the Missouri was in consequence of the detention at the mouth of the Missouri, and the inefficiency of the steam boats.

4th. That the risque, as established by Col. Johnson's witnesses, is equal to nearly ten per cent. and that the entire outfit of Col. Johnson did not exceed one hundred and ninety thousand dollars.

5th. That the ordinary rates on the Missouri, at the date of the contract, are to govern, and that those rates did not exceed six and three fourth cents per pound; and therefore that Colonel Johnson is entitled to nothing for detention, either at the mouth of the Missouri or on the Missouri; but that the United States are equitably entitled to recover and receive from him the entire amount of the damage which they have sustained by that detention.

That Colonel Johnson is entitled to nineteen thousand dollars, as an equivalent for the extraordinary risque, and that he is entitled to receive for the transportation which he has performed, a sum not exceeding six and three fourth cents per pound; but that he is entitled to nothing for the transportation performed by the quartermaster's department, because, having failed in his contract, the quartermaster general had a right to employ him or not, and consequently had the right to employ him to such extent as he might think proper.

To form an opinion of the exorbitancy of the charge presented by Col. Johnson for transportation, it will only be necessary for the referees to examine the last item but one, in the account presented by him.

It will be seen by that item that about thirty-eight tons were transported in a keel boat to the Council Bluffs, for which a charge has been made of twelve thousand three hundred and fifty-five dollars three and three fourth cents. And it has been proven (see the testimony of Capt. M'Gunnegle) that the whole expense of a boat carrying that tonnage, including the price of the boat, wages of hands, and the entire outfit, will not exceed three thousand three hundred dollars; making a clear profit, for a single keel boat, in a single voyage

of about eighty days, of upwards of nine thousand dollars. Such charges require no comment.

But it has been urged that, unless Col. Johnson receive the enormous amount demanded, his ruin will be consummated. With the private affairs of Col. Johnson the government have no concern, and such consideration cannot be permitted to enter into the investigation. His difficulties were not produced by his contract; they existed previous to it; and it can be proven, if necessary, that Colonel Johnson has himself acknowledged that, but for the advantages afforded him by his contracts for 1819, he must have failed.

TH. S. JESUP,
Quartermaster General of the army.

Notes to accompany the argument on the part of the United States submitted to the arbitrators.

It appears, from Col. Johnson's letter, dated November, *1818*, that his brother had one boat in readiness, and two in preparation, before he made his contract of the 2d December, 1818; and he says expressly that the first one was built with a view to the navigation of the Missouri. It could not have been built with a view to the service of the government, for Col. Johnson had received no assurance that he should obtain employment; that boat must, therefore, have been intended to transport the provisions of Col. Johnson as army contractor, and the sum which he considered at that time as a fair equivalent, will be seen by examining his contract with Mr. Graham of 6th December, 1817: or, having no assurance of employment, he could only have calculated upon it by determining to freight for less than keel boats. It will be recollected that the difference of price of the ration between Belle Fontaine and Fort Osage (320 miles) was five cents, two mills and an half, two cents and one mill per pound; and this was not only considered by Col. Johnson in 1817 as an equivalent for the transportation to Fort Osage, but also for the risque of the provisions, as well as of the transports. In his late contract, he had the risque of his transports only; the provisions were at the risque of the government.

An evidence of the injustice of Colonel Johnson's claim will be found in the circumstance of his having presented three accounts for the same service. No man who is not insane would present an account for less than his just demand. Colonel Johnson presented one for 12½ cents; even that is double the price paid by the quartermaster's department, and more than double the price paid by Colonel Johnson to Gen. Green for a part of the transportation performed by him. (See Captain McGunnegle's testimony.)

When Congress called on the Secretary of War for a report of the demands of Colonel Johnson, the colonel was required to make a specific demand, and he designated the account at 16¼ cents as his claim, and withdrew the others; that was considered by him, as well as by the department, as his maximum, and he cannot now be permitted to change it.

Colonel Johnson demands from the government more than twice the amount of his outfit, including the price of his steam boats, although the government advanced him more than the entire cost of those boats, with their expenses for one year. One reason assigned for this exorbitant demand, is the depreciation of steam boat property. If that depreciation has really taken place to the amount contended for by Colonel Johnson, he still has his boats, and, depreciated as they are, the three are worth sixty thousand dollars. His whole outfit and expenses did not exceed one hundred and ninety thousand dollars; admit that he be allowed 160,000 dollars, his compensation for 1819 will then be thirty thousand dollars; more than any individual ought to be permitted to make out of the government in one year.

The detention of the Johnson and Expedition, in addition to causes already assigned, arose, as appears by Colonel Atkinson's testimony, from the Johnson's bursting her boiler, and breaking her piston head, and the Expedition from bursting a boiler. The United States are certainly not accountable for such *accidents*.

Colonel Johnson, in his report to the Secretary of War, acknowledges his failure to comply with his contracts, and accounts for it by stating, that the steam boat Johnson had gone the autumn previous to New Orleans, and did not return until late in the spring of 1819; that the Jefferson was longer at Wheeling than had been anticipated; that the workmen were longer employed upon another boat (the ————) than they had declared would be required to complete it; and that his agent at the mouth of Ohio was careless and dishonest. For those delays and that carelessness and dishonesty Colonel Johnson, and not the government, is accountable.

Three boats only were ever tendered to the officers of government. The Calhoun failed in the service of Colonel Johnson; that boat is not to be considered by the referees in estimating the outfit.

Three boats only were required; when they arrived at St. Louis, it was at the option of the officers to employ them or not; the contract had become void by Colonel Johnson's own act, as he acknowledges; and the government has a fair claim upon him for the entire amount of the damage sustained by that failure.

Colonel Johnson's witnesses estimate the annual expense of each boat at 14,600 dollars; Colonel Johnson has charged for the detention of the Expedition for forty days nearly the whole amount of her expenses for a year.

The quartermaster's department freighted eight boats on the Missouri; four of those boats were employed in transporting the troops and stores from the Jefferson, for which Colonel Johnson has charged.

The colonel appears to find as much difficulty in determining the tonnage of his boats, as the price of his freight. Some of his witnesses say the Expedition is a two hundred ton boat; the Jefferson a two hundred and twenty-five ton boat; and the Johnson a one hundred and twenty ton boat; one of them says the Johnson is a ninety ton boat. In a report to the Quartermaster General, Colonel Johnson states the Jefferson and Expedition at one hundred and twenty-five tons, and the Johnson at seventy-five tons; and in a report to Colonel Atkinson, a few days after, he states the two former at one hundred and seventy-five tons, and the latter at one hundred and ten tons.

Colonel Johnson claims, for the transportation done on the Missouri, two hundred and thirty-three thousand seven hundred and ten dollars. Had the service been performed by the Quartermaster Department, it would have cost sixty-four thousand two hundred and seventy dollars twenty-three cents: and it is proposed to allow Col. Johnson the highest freight on the Missouri at the time the contract was made, which did not exceed six and three-quarter cents per pound, and which would amount to seventy-eight thousand eight hundred and ninety-six dollars and twelve cents, to which add nineteen thousand dollars, or ten per cent. for the extraordinary risk, and the allowance to Col. Johnson for the Missouri, taking his own account or charges as the basis, will be ninety-seven thousand eight hundred and ninety-six dollars and twelve cents.

TH. S. JESUP, *Quartermaster General.*

No. 9.

Argument of WILLIAM WIRT, *Esq. Attorney General of the United States; submitted to the Referees in the case of Col. James Johnson, of Kentucky.*

WASHINGTON, *April* 19*th*, 1820.

SIR: I have examined the documents relative to the points in controversy between the government and Col. James Johnson, and have now the honor of submitting my view of the case.

The opinions and arguments of counsel which have been furnished to Colonel Johnson, cannot, under the terms of submission, go before the arbitrators, except by consent. It would not be consistent, however, with the character of the government, to deprive that gentleman, or any other with whom a controversy may arise, of an opportunity of making a full and fair exposition of his rights. I take it for granted, therefore, that it is intended to relax the terms of the submission in this respect, and permit Col. Johnson to have the ad-

vantage of those arguments; and under this impression I shall incidentally advert to them.

The points submitted to the arbitrators are two only—

1st. Col. Johnson's claim for the detention of his *Steamboats;* and

2d. His charge for transportation, so far as it relates to the operations on the waters of the Missouri.

The attention of the arbitrators will be necessarily limited to the points submitted; but, to enable them to have a full and fair view of these points, it is indispensable that they should distinctly understand the relation which Col. Johnson had with the expedition *in all its parts.*

The project was one and entire; it was to establish a chain of military posts in the northwest, through the Indian settlements, from the Lakes to the Arkansas. The execution of the *whole project* was under the direction of one department, the Department of War; and although managed by officers subordinate to the head of that Department, yet every contract in execution of the plan was, in substance, a contract with that Department.

From the division of duties among the officers charged with the details of this Department, it resulted that there must be different contracts.

The officer, for example, whose duty was limited to the procurement of subsistence, would confine his contracts to that object. The provisions, however, procured under these contracts, must be transported to the points intended to be supplied, as must, also, the clothing, arms, ammunition, and medical stores, necessary for the troops destined to those posts; and the duty of contracting for transportation was in the hands of another officer. As these separate details, however, pointed to the same common object, and were, in truth, but parts of the same whole, it was obvious that the movement of any one part would be idle and nugatory without the movement of the rest; and the danger was, lest, by having *too many* contractors, the failure of one or of a few should impede the rest, and defeat the great purpose of the expedition.

The provisions, for example, might be ready, by the punctuality of one contractor, and the means of transportation be wanting, by the failure of another; and so *vice versa.* And again, both the provisions, and means sufficient for the transportation of those provisions, might be ready, by the fidelity of two contractors; and the means of transporting the clothing, arms, ammunition, and medical stores, (equally indispensable to the expedition,) be wanting, by the negligence or tardiness of a third contractor. It is important to observe, that, in either of those events, there would be no justice in requiring the contractor who complied, to suffer by the failure of another contractor, with whom he had no connexion. The complying contractor would have a fair charge against the government for the detention which *he* might suffer, by the default of the other; but it is equally clear that the government would be entitled to the exact reimbursement of the same sum from the defaulter who had produced the loss.

These principles, it is presumed, are too clear for controversy. Now let us suppose that these three contracts, instead of being in the hands of three separate contractors, are in the hands of one individual; he complies with one of his contracts, and fails in the rest, by which failure his partial compliance is rendered perfectly abortive and useless to his employer; for example, he furnishes, according to one contract, the means of transportation, but fails, under another contract, to furnish the provisions to be transported: his boats are detained for the want of the provisions; he claims damages for this detention under his separate contract to *transport;* but, as in this case he represents both the complying and the defaulting contractor, it is very clear that if he be authorized to receive damages with one hand, in the character of the complying contractor, he is bound to pay them back with the other in the character of the defaulter.

Unless I am greatly mistaken in the facts of this case, that which has just been stated is the predicament of Col. Johnson in this controversy with the government. For, with the view to avoid the embarrassments to be apprehended from multiplying the contractors, and to give to the execution of the details all the concert and energy of movement which could be derived from placing it under the direction of a single mind, three contracts were made with Col. *Johnson.*

By one contract with the quartermaster general, he engaged to transport from Pittsburg to St. Louis the clothing, ordnance, and medical stores, necessary for the expedition.

By another contract, made with the commissary general of subsistence, he engaged to supply the provisions.

By a third, with the quartermaster general, he engaged to furnish such transportation for those provisions as might not be performed by the troops.

The slightest attention to the nature of these engagements will shew, that they are so mutually dependant, so inseparably interwoven, as to constitute, for every practicable purpose, a single engagement only, and that *one and indivisible.* It was, as already stated, because the parts were, from their nature, practically indivisible, that they were placed under the direction of a single contractor; and it must be too clear to require discussion, that a failure in any one of the parts would render a compliance with the rest unavailing to the government. The attempt, therefore, on the part of Col. Johnson's advocates, to separate these parts by urging that they are different contracts, and that a failure in any one ought not to affect *his* claim under any other, is considered as totally inconsistent with that spirit of candor and liberality which they have invoked to the examination of the subject. They have at one time required that the arbitrators should take up the case on the principles of equity. To this, the government is understood to have no objection. How then would a court of equity act upon the case? Would they permit the separation of the contracts, on technical principles, for the purpose of permitting the contractor to claim damages, for detention under one contract, while it was clear, on a view of the whole case, that the de-

tention, of which he complained, was produced by his failure under another engagement *inseparable in execution from the former?* Would they not, on the contrary, say to him "you who ask equity "must do it. The damage you ask for this delay, having been oc- "casioned by yourself, is *damnum absque injuria*, and the court will "not do so vain a thing as to decree you to receive from your em- "ployer a sum with one hand, which precise sum, on the principles of equity, they must decree you to pay back to him with the other." If a court of equity would do this, as they certainly would, then the arbitrators, who are on both sides required to consider the case on the same principles which govern that court, will necessarily do the same thing.

With these preliminary principles in view, I proceed to take a brief and rapid view of the prominent facts of the case, referring for a more extended detail to the very able statement which has been drawn up by Gen. Jesup.

The great object of the government was to complete the military establishments on the Missouri, as high up as the Mandan villages, *in the course of the year* 1819. It was necessary, therefore, that all the arrangements should be adapted to the accomplishment of this object *within that year*. In thus adapting them, the length of time necessary to effect the navigation of the river, thus high, was first to be considered, and this involved the consideration not merely of the extent of the river, but the periodical rise of the waters, the rate of the current, the obstructions, &c. Another consideration too of no little consequence in selecting the time of setting out, was the desire to get the troops under the cover of their cantonments, at their respective stations, before the autumnal suns should render exposure on the river dangerous to their health. All these considerations conspired to indicate the month of April, 1819, as the time when it would be necessary that the expedition should set out.

In execution of this plan, a battalion of riflemen was, in the preceding fall, pushed up the Missouri, as high as *L'Isle au Vaches*, for the purpose of forming an advanced guard, carrying with them a sufficient quantity of provisions to last until the expedition contemplated in the spring should furnish them a fresh supply.

In further execution of the plan, Col. Johnson contracted to have the clothing, ordnance, and medical stores, from Pittsburg, the provisions, and means of transportation, concentrated at St. Louis, from the 1st to the 21st of March. This is proven by his contracts, by the evidence of Col. Gibson, by the requisitions from the War Department, and by his letters, acknowledging the receipt of those requisitions, to which a more specific reference is deemed unnecessary, as the arbitrators will, it is presumed, go carefully through the whole evidence.

In this engagement, it is in proof that he failed by *several months*, and all the effects of this failure deserve to be seriously weighed in a case in which the contractor is claiming a compensation in damages.

It defeated the enterprize in the extent to which it had been projected, and lost to the government the expense of one year's opera-

tions. As a minor, but yet important consideration, it exposed the rifle regiment in advance at *L'Isle au Vaches* to famine, or drove them to the alternative necessity of trespassing on the Indian hunting grounds for the procurement of subsistence, and thus putting in jeopardy the peace of the government. The arrangements of the government, having been thus broken, and the great measure which they had in view for the year irretrievably defeated by the failure of Col. Johnson to comply *punctually* with his engagements, the government was certainly justified in considering the contract as abolished by this fatal failure on the part of the contractor. For this is not one of those cases in which the *time* of performance is immaterial to the validity of the contract; it was by no means immaterial whether he should have the provisions, &c. concentrated in one month or in another. On the contrary, the actual results demonstrate that, in this case, *time* was of the essence of the contract, because, on punctuality of performance in point of time, depended the practicability of the whole enterprize. This failure of Col. Johnson therefore was an invasion of the vital principle of the contract, and put an end to its obligation on the part of the government. It appears that it was so viewed by the officers of the government on the spot, who thereafter received nothing from Col. Johnson but under the constraint arising from the vast advances which he had received, and for which they had no other hope of reimbursement, nor even under this constraint, except on such terms as their sense of public duty prompted, to which it also appears Col. Johnson acceded. Col. Johnson, by this failure, lost the high ground of a party faithful to his contract, who has a right to exact a rigorous performance from the other side, and placed himself entirely at the mercy of the government—an advantage which it does not appear to me has been in the slightest particular abused.

What is the defence which is offered for this breach of contract on the part of Col. Johnson? It is understood to be two fold.

1st. That it is immaterial.

2d. That performance was accepted at another time, whereby the injured party lost his right to complain.

1st. That the breach was immaterial. Why? Because, late as Col. Johnson did get to the place of rendezvous, he was there before the expedition was prepared to move; meaning, by this preparation of the expedition, before the arrival of Gen. Jesup and Col. Atkinson, with his regiment from Plattsburgh.

The answer to this argument is, that it begs the premises on which it is founded. The fact which is assumed, as authorizing the conclusion, is, that the arrival of Gen. Jesup and of Col. Atkinson, with the regiment under his command, was a *prerequisite* to the movement of Col. Johnson's steam boats and provisions. If the fact was not so, there is an end of the argument; and, it is affirmed it was not so. The contracts, the requisitions from the War Department, the orders, from time to time, issued to Col. Johnson, and his correspondence with the officers, under whose more immediate direction he was plac-

ed, are all before the arbitrators. In none of those can any intimation be found, that he was to await the arrival of either of these officers or of that regiment. He had no authority to assume the fact. He had nothing to do with the direction of the expedition; his only business was to attend to the fulfilment of his own engagements as contractor. The fact is, that neither the arrival of Gen. Jesup nor Col. Atkinson, with his regiment, had the slightest connection with Col. Johnson's movements. Gen. Jesup came merely to supply any omission on the part of the contractor, since, even in the case of an individual, so much confided in, as Col. Johnson was, omissions were possible; and the execution of the enterprise was deemed too important by the government to be lost for trivial difficulties susceptible of reparation. And, as to Col. Atkinson and his regiment, it is demonstrably clear, from a comparison of dates, that the movement of this regiment, in unison with the first movements of Col. Johnson's boats up the Missouri, was not contemplated. For the latest day for the concentration of the provisions, and the 420,000 rations, and means of transportation given to Col. Johnson, was the 21st March. Whereas the orders issued to Col. Atkinson, for his movement from Plattsburgh, bear date on the 15th March, 1819, and require that, when he shall have made the necessary arrangements for marching his regiment to St. Louis, he will repair to Washington to receive further orders. The substance and date of this order confirm the assertion of the quartermaster general, (in itself so justly entitled to respect,) that Col. Johnson's movements had no connection with, or dependence on, the arrival of Col. A. and his regiment, and, consequently, that the fact, on which the argument is founded, has been erroneously assumed.

2d. The other answer given to the complaint of Col. Johnson's failure in March, 1819, is, that the government accepted a compliance at another time, whereby it lost the right of complaint, and waived the original contract in this particular.

This argument supposes that the failure in compliance was *only in point of time*, that in all other respects it was perfect; that, being thus perfect, although at a subsequent day, and the government *(entirely free to accept or not,)* having accepted the compliance at that future day, waived the time stipulated by the contract; for, it is only with these qualifications, that the position, so plausible on its face, is sound either in law or reason. For, if the compliance thus offered at a future day, was in all respects defective, and was accepted under compulsion arising from the necessities of the case, and these necessities growing out of the dependence which had been placed in the contractor, it is obvious that there is an end of the argument. Either to make or to release a contract, the mind must be free to assent: an assent extorted by duress is no assent at all. Now, it happens, unfortunately for the argument, that the failure in point of time, (all important as that alone is shown to have been,) was by no means the only failure; the evidence demonstrating, the correspondence of Col. Johnson himself admits, that there was a material failure in the num-

ber of rations, a failure fatal to that accuracy of adjustment, which is essential to all military movements. Nor was this all; for it is insisted, that, according to the preponderance of proof, (weighing, rather than counting the witnesses,) the boats themselves were either not adapted to the waters which they were intended to navigate, or were most unskilfully and defectively manned: and, lastly, and above all, Col. Johnson had contrived to place the government in that situation, that all freedom of action was gone. He had received advances of money to such an amount, as to preclude all hope of reimbursement, except in such performance of his contract as he might offer, and under this constraint, if, instead of two steam boats, and six hundred and seventy thousand rations, which were required of him, he had brought only one keel boat and fifty rations, they would have been received. But, can it be gravely contended, that an acceptance thus forced upon the government in self-defence, would have amounted to a legal waiver of the original contract; and place the contractor on the lofty and authoritative position which the argument of his counsel claims for him? It is conceived that but one answer can be given to this question by any sound mind, and *that* fatal to this argument in behalf of the contractor.

Col. Johnson's failure, then, to meet his engagements *in* March remains without excuse. Had he met that engagement at that time, although he would not have found at St. Louis either Gen. Jesup, or Col. Atkinson, with his regiment, (with whom he had nothing to do,) he would have found there the only person with whom, under his contract, he had any thing to do, the Deputy Commissary of Subsistence; and the great plans of the government, which looked to the Mandan villages, might have been completely effected.

But he failed to meet this engagement; and this failure, besides frustrating the plans of the government, may be considered as one of the chief causes of those very disasters of which he himself complains.

I proceed to consider the specific points submitted to the arbitrators.

The first is his claim for the detention of his boats. To enable us to apply the evidence in this case, it is important to have a correct understanding of the precise stipulation on which this charge is founded. The words of that stipulation are, "And also such reasonable and further allowance as may be equitable and just, provided, that if, *in the arrangements and operations of the government*, the said steam boats should be detained in their destination, *from the want of concentration of the articles, &c. to be transported, or otherwise*, and not imputable to the negligence of the said James Johnson." According to the construction of this article, contended for on the other side, the government makes itself responsible for every cause of detention, which cannot be directly referred to the negligence of Col. Johnson: For example; if he sends one of his steam boats to New Orleans in the preceding fall or winter, and she gets arrested by the ice on her return, so as not to be able to reach St. Louis by the appointed time, inasmuch as the formation of the ice is the act of God, and cannot be

charged to the negligence of Col. Johnson, the government is answerable for the detention; if one of the steam boats breaks her piston head, and another bursts her boiler, those accidents not being justly imputable to the negligence of Col. Johnson, the government is bound to answer for the delay occasioned by them; if the bank of St. Louis makes an unjust claim against Col. Johnson, and delay results from the service or attempted service of the process which they sue out, the government must pay him for this delay, because it is not chargeable to his negligence; nay, more, if he himself fails to furnish a sufficient number of rations to justify the movement of the expedition, and it becomes indispensably necessary to collect a greater number before that movement can be made, the government must pay him for the time necessary to collect those rations, because, although the delay has resulted from his negligence *under another contract*, it has not resulted from his negligence *under this particular contract*, which is confined to the means of transportation; and, in order that the government may escape from its universal responsibility for all causes of delay, except those imputable to Col. Johnson's negligence, they must show that the negligence occurred in the execution *of this specific contract:* Such is the construction set up on the other side. The injustice of it, (for I will not use so indecorous a word as absurdity,) is not only manifest, but monstrous. It is not the rational construction of the article, and this will be clear from the slightest attention to its terms.

The engagement is, to be answerable for all delays resulting *from the arrangements and operations of the government;* the want of concentration of the articles to be transported is given as an instance of such a delay, for the purpose of illustrating the meaning of the engagement. The words "or *otherwise*" are intended to cover all other cases of delay which might arise from *the arrangements and operations of the government* which it was impossible to foresee, and consequently, impossible to specify. Thus, the sweeping universality imputed to those words "or otherwise" is destroyed by their immediate connexion with the *particular example of delay which is given for illustration*, and by the connexion of both with their common cause, *the arrangements and operations of government.* Justice required that if the government should produce delay to the contractor, it should compensate him for that delay. But justice required no more, and no further does their engagement by any fair and rational exposition of it extend.

In order then to justify this charge against the government for detention, it is incumbent on the party who makes it to show that it arose from the arrangements and operations of the government. Did the government fail to concentrate at St. Louis any articles for transportation which it was incumbent on the government so to concentrate? The only articles necessary to the movement were by other contracts to be concentrated by the contractor himself. Is any part of the delay fairly attributable to any arrangement or operation of

the government, which, under the circumstances of the case, they had not a right to make without furnishing just cause of complaint to Colonel Johnson? It is to be borne in mind, that this article is bottomed on the supposition of a faithful compliance on the part of Col. Johnson with the previous articles of the contract. The government says to him in effect: "do what you have undertaken to do, perform with fidelity what you have undertaken to perform, to insure the complete execution of this great project, and if we cause delay to you, we will compensate you for that delay." If this be the spirit of the engagement, as it manifestly is, then, in order to entitle himself to make this demand, Colonel Johnson must show *that* he fulfilled the previous condition. This he cannot show, and hence, in my humble opinion, he does not hold a position in the case which authorizes him to make this demand. But waiving, for the sake of the argument, this bar to his demand, how stands this fact of the detention, and first, as to that which occurred at the mouth of the Missouri. He charges for the detention of the steam boat Expedition from the 17th of May to the 5th of July, 40 days $13,333 33⅓, and for that of the Johnson from 22d of May till 5th of July, 36 days $7,200.

That those boats arrived at or about the time and set forward also on the expedition at the time assumed by those charges *will not* be controverted; the question is, whether the delay charged was occasioned by the government. It is insisted that no part of this delay was occasioned by the government; but that Colonel Johnson himself was not prepared to move until the time at which he did set out. In support of which assertion, I refer to the depositions of Col. Chambers, of Major Hemstead, of Captain M'Gunnegle, and of Colonel Atkinson, and the certificates of Hemstead and Wilson; of these I select the deposition of Colonel Atkinson for the subject of a few comments, because this gentleman has been the subject of frequent, exalted, and (I have no doubt) of just eulogy, to both the Colonels Johnson, as their letters show, and, consequently, he is a witness above all exception by their own report, and because this single witness alone most conclusively repels the charge that the delay complained of was occasioned by the government. He goes farther; he shows expressly that it arose from the negligence of Colonel Johnson himself. Let it be added that this gentlemen is the contractor's own witness, having been first examined by his agent in chief, and then cross-examined by the agent of the quartermaster general. This witness, in reply to the 5th interrogatory, states the following facts:

1st. That the expedition could not have moved with propriety without the ordnance, munitions, and clothing, (the transportation of which Colonel Johnson had undertaken,) and that the steam boat Jefferson, which had these articles on board, did not get to St. Louis before the 20*th of June.*

2d. That the expedition could not have moved with propriety without a larger supply of provisions than what Colonel Johnson had on hand *even on the* 28*th of June.*

To the 6th interrogatory, he answers by the statement of a fact

which I consider decisive of the question: "That it would by no means have been safe or prudent for the expedition to have moved without an additional supply of provisions." That on the 28th June he ascertained the bread part of the ration to be so entirely deficient, that he informed Colonel Johnson the expedition should not move till 800 barrels of flour more were furnished; and that it was not until the 30th June, that the steam boat Jefferson dropped drown from the mouth of Wood creek to St. Louis, and received the whole or greater part of the flour.

He had stated in answer to the 4th interrogatory that, on the 8th of June, he had apprised Colonel Johnson that the expedition would be ready to move whenever the transportation and provisions (both which depended solely on Colonel Johnson) were furnished, and with this notice it did not move till the 4th or 5th of July.

In calling for this additional supply of flour, did Col. Atkinson require more than Col. Johnson was bound to furnish? On the contrary, he did not require so much, for the depositions, to which I have already referred, establish the fact that, to the last, he never did fulfil the requisitions which were regularly made under the contract, and the whole of which might have been regularly exacted from him as an indispensable preliminary to the movement. It is idle in Col. Johnson, therefore, to assign, as the causes of the delay,

1st. A failure on the part of Col. Chambers, and the officers of government, to afford the necessary co-operation in the inspection of the provisions.

2d. A demand that the pork, &c. should be resalted and repacked.

3d. The non-arrival of Col. Atkinson and his regiment, and of Gen. Jesup; and,

4th. The unavoidable delay, imputable to the culpable neglect of no one, incident to the operation.

Because, if these causes specified were true, as matters of fact, neither produced that want of preparation which alone was sufficient to have produced, and did at last produce, the delay of the movement. It is essential to the success of his argument, that he himself was ready to move, and that he was delayed by the government; it is now, however, made manifest, by a witness of his own selection, that he himself never was ready to move, until he did move, and hence his whole argument falls to the ground, and with it this most extraordinary complaint.

The first cause of delay, assigned by Col. Johnson, is the failure on the part of Col. Chambers, and the officers of government, to afford the necessary co-operation in the inspection of the provisions. What had Col. Chambers to do with the business of inspection? Col. Johnson's own contract informed him that the person to whom he was to address himself, was the assistant commissary of subsistence at St. Louis; and we are informed by the gentleman who filled this office, Major Hemstead, that he waited on Col. Johnson the morning after his arrival, and informed him that he was the person who was authorized to receive the supplies. The real meaning of the complaint is,

that the officers would not receive the provisions without that inspection which had been expressly stipulated by the contract, for the purpose of protecting it againt the civil process of the government of Missouri. In other words, that they would not falsely affirm it to be the property of the United States, with the view of defeating the service of that process. Were they bound to do this by the contract? I find nothing of the sort there; nor do I find that they were bound so to do by any principle in any system of ethics, or in any code of honor, civil or military.

The truth is, that there was no sort of accommodation within the power of those officers, and which could be properly furnished, which was not furnished promptly and liberally; which will be manifested by the evidence of the most respectable witnesses that have been examined in the case.

2d. The next cause of delay, assigned by Col. Johnson's council, is the demand that the pork, &c. should be resalted and repacked, which is said to be the interpolation of a new term into the contract.

The first answer to this complaint is, that the provisions not having been offered at the proper time, the officers of the government were not bound to receive them at all; or, if they chose to receive them at all, they had a right to say on what conditions they *would receive* them, which conditions again Col. Johnson was at liberty to accept or not. He did exercise the right of refusal at first, as appears by the evidence of Major Hemstead, but he thought better of it after a time, and agreed to the operation of which he now complains.

The second answer to the complaint is, that the right of inspection, expressly given by the contract, carries with it, irresistibly, the right of absolute rejection, and, consequently, the minor right of conditional acceptance.

The provisions, it was well known to the contractor, were not intended for consumption at St. Louis; he knew that they were destined for military posts many hundreds of miles up the Missouri, and which it would take them weeks and months to reach.

This voyage, too, owing to the failure of Col. Johnson to present himself in March, as he was bound to have done, was thrown so far forward in the year, that the provisions were now to be exposed to the hottest suns of the summer and autumn. They were to be inspected for what purpose? To see if they were *then* fit for use? Certainly not. But to see if they were in a condition to bear such a voyage at such a season, and be fit for use when they should reach their place of destination.

It was determined, by those who had the right to decide upon this subject, that they were not capable of such an exposure, without the process of resalting and repacking; the process was therefore required as the *sine qua non* of their reception. Col. Johnson was at liberty to assent or not—he did assent, and has therefore no cause of complaint now.

Can it be believed for a moment, that this was done with the view of harassing Col. Johnson by needless expense, trouble, and delay? Was the precaution even unnecessary? On the contrary, a fact is in

proof which shows it to have been indispensable to fit the provisions for their destined purpose; for Col. Chambers, in answer to the 8th interrogatory, states, that a portion of the provisions which had been left at Belle Fontaine, and which was deemed sufficient for one month's allowance for the detachment at that place, *without being resalted*, was spoiled in a few weeks after, and, consequently, condemned. See, also, Major Hemstead's certificate.

The third assigned cause of delay, the non-arrival of Col. Atkinson and his regiment, with General Jesup, has been answered by anticipation: and the fourth is too vague to require or admit of an answer, further indeed than that this, in common with every other alleged cause of delay, has been answered by Col. Atkinson's evidence, which has been already brought to your view. So much for the detention at the mouth of the Missouri.

With regard to the delay up the river, Colonel Atkinson again speaks; in answer to the seventh interrogatory he says,

"The delay of the steam boat Jefferson was owing to the frequent breaking of her machinery," &c. &c.

"The delay of the steam boat Expedition may be attributed to the bursting of one of her boilers," &c. &c.

"The delay of the Johnson may be attributed to the bursting of one of her boilers," &c. &c.

Are these delays chargeable to the government? Did they undertake to be responsible that no delay should arise from the breaking of the machinery, and bursting of boilers? Did the government, by any act of theirs, produce this delay? These questions carry their answers with them. The government had nothing to do with the selection of the steam boats, or the fabrication of their machinery. If they were badly built, or injudiciously chosen, the fault was not theirs, but Col. Johnson's. And so far as the low water of the Missouri had any agency in producing the delay, it is fairly chargeable to the failure of the contractor to commence the expedition in the spring as he had been required to do.

It is enough, however, to say, in reply to the alleged causes of the delay up the Missouri, that they are not of that character for which the government agreed to become responsible, because they did not result from any arrangement or operation of the government. Upon the whole it appears very clearly to me, that Col. Johnson has no claim on the government for the alleged detention of his boats, either at the mouth of the Missouri or up the river, because the delay was not, in either instance, attributable to the government, and it is only for delays occasioned by its own acts, that the government agreed to compensate the contractor.

But let us suppose, for the argument's sake, that, in the face of all these opposing facts, Col. Johnson is entitled to compensation for these delays; what should be the rate of this compensation? What the standard adopted for its adjustment? In commercial cases where demurrage is left open upon the charter-party, the standard is the actual *per diem* expense during the delay. By this standard the detention in

question would amount to $——— only, instead of $———, at which they are charged in the account B, submitted by the contractor to the arbitrators.

The other point submitted to the arbitrators is the allowance to be made for transportation. In relation to this point, the contract does not leave the arbitrators entirely at large. Their function is not to make a contract for the parties, but to expound and enforce that which has been made. So far as the contracting parties have expressed their intention, that intention will be respected, and no power exists on the part of the judges who are called on to determine the meaning of the contract, to substitute a new and arbitrary intention.

In this case, although the sum to be paid for transportation is not fixed, a *basis* for its adjustment is agreed on, from which the arbitrators cannot depart without varying the contract: the stipulation is:

"That the contractor shall be allowed *a reasonable compensation, taking into consideration the hazard attending the navigation of waters at points so distant and heretofore unexplored by such mode of navigation, and the ordinary rate of transportation, as the basis for such allowance.*"

If the two principles which constitute this basis, to wit: *the hazard* and *the ordinary rate of transportation*, be susceptible of being reduced to certainty by positive proof, the arbitrators have no discretion in the case, but would feel themselves imperatively bound by the contract of the parties; since that which is capable of being rendered certain is not less obligatory, than that which is certain on its face; and even if the proofs which apply to the ascertainment of this basis do not produce the effect of *absolute certainty*, yet it will be respected as the basis adopted by the contracting parties themselves, and the proofs which approach the effect of reducing it to certainty will be regarded as matter of relief by the arbitrators, because it enables them so far to carry the intention of the contract into effect.

Far different from this, however, seem to be the views of one of the counsel in behalf of Colonel Johnson. He seems to consider the arbitrators as perfectly at large on this subject of compensation, without any guide whatever in the contract of the parties. Hence those appeals to feeling, in a case in which judgment only is called to decide. Glowing pictures have been drawn of the grandeur of the enterprize; of the appalling dangers which attended its execution; of the high character which led to the selection of Colonel Johnson as contractor; of the noble patriotism which induced him to embark and devote his fortune in the execution of this very perilous and arduous undertaking; of his "hair breadth 'scapes by sea and land;" the patriotic fervor which sustained and enabled him to triumph all the difficulties which encompassed him, &c. &c. &c. All this is very well as a specimen of eloquence, and, to borrow a phrase, "is not the less poetic for being founded in fiction." Col. Johnson could have had no hand in suggesting these topics. Real *patriotism* never boasts; and, besides this, Col. Johnson knew well that those topics had no just application to his case. The correspondence which led to the contract is be-

fore me, and its perusal is very well calculated to break up all those splendid visions of disinterested patriotism and self immolation which have been presented in order to awaken our admiration and gratitude in behalf of Col. Johnson. The transaction, indeed, seems to have been very much of the every day sort. The government had a profitable contract to offer, and Colonel Johnson very naturally was desirous to get it. The contract did not seek him; he sought it. He sought it too with quite as much importunity as is usual on such occasions, and from the usual motive of *interest*. The enormous account which he has presented proves this, for money is not the reward to which patriotism looks. Among other inducements to give him the preference, the military services which he had rendered to the country were presented with quite as much zeal as delicacy can well digest, and with almost as much eloquence as his patriotism is now offered to gild the pill of his account. These reflections are not pleasant, but they are forced from me by the exaggerated and unfounded appeal which has been made to our sympathies on the other side.

There can be no doubt that Colonel Johnson is a gallant officer and a good man; properties, I hope, not so very rare in our country as to call for any uncommon degree of admiration, and properties which, it seems to me, are very improperly pressed into the consideration of this subject. The counsel would have us to believe that the experiment of the practicability of navigating the Missouri by steam boats, formed in itself a distinct and substantive object with the government, and that it was with a view of seconding this laudable object that Colonel Johnson offered himself, and commenced the building of his steam boats. Both positions are utterly destitute of foundation. It was not the purpose of the government to make any such unjustifiable experiment, for the sake of the experiment. They wished troops, provisions, and munitions of war, to be carried up the Missouri in the shortest practicable time, and steam boats were resorted to because their superior celerity had been proven on the lower Mississippi and Ohio, and because it was believed, and still is believed, that, in the state of high water, there is little if any difference in point of difficulty, between the navigation of the Missouri and either of those rivers. There is just as little foundation for the assertion that Col. Johnson entered upon the enormous expense of building steam boats adapted to the navigation of the Missouri, *in consequence of his contract with the government*. A letter from Colonel R. M. Johnson to the quartermaster general, of date the 17th November, 1818, is now before me, and will be before the arbitrators, by which it appears that, *before and independent of the contract*, Col. Johnson had resolved to embark in the navigation of the Mississippi and *Missouri* by steam boats, as a matter of profitable employment, and had then actually built one steam boat for this purpose; having two others on hand which he would finish if employed by the government. In this private enterprize it is manifest that Colonel Johnson could only hope to succeed by underbidding the keel boats. This, therefore, he must have determined to do; and so little reality was there in those appalling terrors

which are now depicted in such strong colors, that he had made up his mind to encounter them on his own risk. Hence the liberality of the government in the contract which was afterwards made with him; for their engagement is not merely to pay him the ordinary rate of transportation, to which alone he looked in the individual engagements that he contemplated, but to make him a reasonable compensation for that very risk which it appears he had previously determined to take upon himself.

The government is still disposed to be liberal, but it is humbly conceived that there is some difference between liberality and prodigality. The offer made by the quartermaster general appears to me to touch the line between them; and, to go further, would be a wanton waste of the public funds.

Let us look again to the basis on which the arbitrators are required, by the positive contract of the parties, to adjust this compensation. It is composed of the ordinary rate of transportation and the risk. Let us consider them separately:

1st. The ordinary rate of transportation. We are asked to take the rate at the time of the contract. To this the government agrees. What was that rate? The rate taken by Col. Johnson himself was four and three quarter cents per pound. It would not be very illiberal, on the part of the government, to abide by this *standard* furnished by himself; but this it waives. Another rate, furnished by Captain M'Gunnegle, is five cents; another, and the highest resulting from any proof of actual freights, is six and three quarter cents. It would be liberal in the government to take the average rate as the standard. But what does it propose to do? To take the highest. If this be not liberality, the word has lost its wonted meaning.

The risk is the only remaining inquiry. In relation to this, various speculative opinions are expressed by persons who, on their cross-examination, prove themselves incompetent as judges. One *fact*, if we can get it, is worth a thousand *opinions*. We have a fact from a Mr. Sebree, a partner, it seems, in the contract; a favorable witness therefore to Col. Johnson, although an incompetent one, as it regards the government. But, in the same spirit of liberality, which the government has manifested in every part of the case, the objection of incompetency is waived, and the standard of risk, afforded by the parties themselves, is adopted. Sebree says that one boat in ten is lost. The fact is not believed as an average occurrence, for, if true, it would break up the navigation of the river. The government, however, is willing to take the statement as correct. Then add, to the highest rate of transportation, ten per cent. for the risk, established by the parties themselves, and we have the amount to which Col. Johnson is entitled under the contract. This will require the government to allow him, for transportation, $ 97,896 12; in doing which, they pay him $ 33,625 89 more than they would have had to pay for the same service performed by keel boats: it is just so much lost to the government by having employed Col. Johnson. Were Col. Johnson before Congress with his claim, it is conceived

that he would have a very different measure of retribution dealt out to him, and yet not one of which he could justly complain. Had the government employed the ordinary means of transportation, the cost would have been $ 64,270 33. Col. Johnson demands by one account $189,889 37½, and by another ——, and this is the reasonable compensation for which he stipulated. To be sure if the government is to be considered merely as a pigeon to be plucked at the pleasure of a claimant, there is nothing wonderful in the rapacity of these charges. But if reason and justice are to hold the balance, they require but to be stated to be rejected. It has been shewn that the government is willing to be liberal: but it is to liberality, only in name, that the appeal is made. Nothing but the most profuse and inconsiderate prodigality can countenance, for a moment, such monstrous demands.

By reference to the accompanying statement, marked W, it will appear that, upon the principles on which the Department of War has offered to settle the account of transportation on the whole contract for both rivers, Col. Johnson will clear upwards of $ 30,000 for the labors of six months, which, I should think, ought to satisfy a reasonable mind. It seems, however, that it does not satisfy Col. Johnson. Whether his farther demands are to be gratified, the arbitrators will decide. To me it is very clear that liberality requires no more.

As to the claim of damages, which is made, *in argument*, for the employment of other keel boats than those of Col. Johnson, it is sufficient to observe, that this is not a point submitted to the arbitrators; and, if it were, there is nothing either in the contract or the facts of the case that supports it.

I have the honor to be, sir,
Most respectfully,
Your obedient servant,
WM. WIRT.

Hon. J. C. Calhoun.

(No. 10.)

DOCUMENTS GROWING OUT OF THE INVESTIGATION BY THE ARBITRATORS.

Interrogatories proposed to Capt. McGunnegle by the arbitrators.

Interrogatory 1. A calculation as near as may be of the whole amount of tonnage requisite for the transportation of the whole expedition as it moved up the river in June and July, including troops, baggage, arms, munitions of war, provisions and stores of all kinds?

Answer. I am not in possession of all the necessary data from which to make the above calculation with any certain degree of accu-

racy; but, from that now before me, I make the whole amount of transport employed in the Missouri expedition as it moved in June and July last about twelve hundred tons.

Inter. 2. What proportion of the whole tonnage actually employed upon the occasion was provided by the quartermaster's or commissary's departments, by purchasing, hiring, or building boats?

Answer. There were sixteen keel boats owned by the government and employed in the Missouri expedition. Those boats averaged about twenty-five tons each; and twelve boats hired by the quartermaster's department carrying three hundred and twenty-five tons, making the whole amount actually provided by the quartermaster's department seven hundred and twenty-five tons.

Inter. 3. Were the public boats, in which the 6th regiment and part of the 5th came from Pittsburg, used as a part of the transport for the expedition up the Missouri?

Answer. Ten boats were employed by the 6th regiment, and the detachment of the 5th, from Pittsburg to St. Louis, eight of which were used in the Missouri expedition; the remaining two were employed by the detachment of the 5th infantry in ascending the Mississippi.

Inter. 4. Were there any public transports on hand at St. Louis or Belle Fontaine, before the arrival of Col. Johnson's steam boats, and were such public transports used in the expedition?

Answer. There were one or two public transports at Belle Fontaine before the arrival of Col. Johnson's steam boats, but they were not used in the Missouri expedition, being considered unfit for that service. There were eight in advance with the rifle regiment that were used in the expedition.

Inter. 5. Were the public transports from Pittsburg capable of taking in any provisions or military stores besides the troops which they actually brought, with their arms and baggage, and a supply of provisions for the voyage? And what do you suppose was the amount of spare tonnage?

Answer. The transports from Pittsburg were capable of taking in other stores besides the troops, arms, baggage, and a supply of provisions for the voyage. The amount of this spare tonnage I suppose would average about eight tons to each boat.

Inter. 6. Did Col. Atkinson, after his arrival, issue any orders for providing transports for the expedition, and what transports were provided under such orders?

Answer. He did. His first order was to furnish transportation for the provisions and other stores left by the steam boats. Four keels were furnished under this order; three of which were loaded with those stores, the fourth was ordered to proceed with the steam boats for the purpose of aiding them in the event of their running aground, and was to have been loaded with corn at Franklin if not required by the steam boats. His second order was to employ such transportation as might be necessary should there be a failure in ei-

ther of the steam boats. Three boats were employed under this order to transport the cargo of the steam boat Jefferson. His last order was to furnish all transportation that might be required in the event of Col. Johnson's failing to furnish in due time.

Inter. 7. What repairs, improvements, or alterations, were done upon the public transports after Col. Atkinson's arrival to fit them for the service, and whether any such repairs or alterations were ordered or begun before his arrival? Were the said boats fitted with wheels or other machinery for propelling them up stream, and how long before the expedition moved had those repairs, &c. been completed?

Answer. I have no knowledge of any *repairs* being necessary to the public transports that ascended the Missouri. The alterations made on those boats were commenced about ten or twelve days after the arrival of Col. Atkinson, and not until he had ascertained that those alterations could be completed before the steam boats would be prepared to move. The application of wheels to four of those boats was the only alteration made, which was completed about two days before the expedition moved.

Inter. 8. Were there any munitions of war, ordnance, or hospital stores, or other military stores, prepared or deposited at St. Louis or Belle Fontaine, for the expedition, besides what was brought in the steam boat Jefferson and in the public transports from Pittsburg? And what the probable tonnage of such munitions or stores, if any, were previously provided at either place?

Answer. Other military stores were deposited at Belle Fontaine for the Missouri expedition besides those brought on board the Jefferson and the public transports from Pittsburg. The amount of which, I believe, was about ten tons.

Inter. 9. Whether the ninety tons, provisions, and military stores, stated by Capt. McGunnegle to have been left behind for want of sufficient transports were a part of those brought to St. Louis or Belle Fontaine in Col. Johnson's steam boats and in the public transports from Pittsburg?

Answer. A part of the ninety tons of provisions, &c. left behind, for want of sufficient transport, was brought to Belle Fontaine in Col. Johnson's steam boats, a part was brought in public, and a part in private transports from Pittsburg.

Inter. 10. Whether those ninety tons provisions and military stores were afterwards sent up the Missouri, and when and by what mode of transport?

Answer. Those ninety tons of provisions were shipped on board of three keels employed by the quartermaster's department on the 9th July.

Inter. 11. What was the rate of freight expressed on the face of the bill of lading, which it is said Col. Johnson was required to sign, and whether, after objecting, he at length signed under any protest, or reservation of a claim to higher freight?

Answer. The price of freight expressed on the bills of lading from Pittsburgh, was 1¾ cents per pound; from St. Louis to Council Bluffs 5½ cents per pound; from St. Louis to Fort Armstrong on the Mississippi, 2½ cents per pound; to Fort Crawford on said river, 8 cents per pound; to the Falls of St. Anthony on said river, 5½ cents per pound. I believe Col. Johnson has not signed any of the bills of lading from Pittsburgh to St. Louis; bills to each of the other points above named have been signed by his agents, but whether under protest or reservation of a higher claim, I am unable to answer.

Inter. 12. When was the first requisition made upon Col. Johnson for any additional transport, over and above the two steam boats which were specifically required by his contract, and to what extent was such requisition?

Answer. No written application was made by me to Col. Johnson for additional transportation prior to the 27th of August; he was verbally informed, on the 3d July, that three keels were requisite to carry the provisions and other stores left by steam boats. He then promised to furnish *one keel* in the course of two or three days, which boat was waited for until the 8th, when it was not furnished; transport was then employed by the quartermaster's department.

Inter. 13. Referring to Captain McGunnegle's two requisitions of the 31st of August and 21st of September, for additional transport, please state whether the provisions and military stores, therein mentioned as intended for the Missouri and Council Bluffs, were the same provisions and stores which had been left behind in July; or by what means procured?

Answer. For answer to first part of this interrogatory see answers to interrogatories six and ten; the provisions were delivered by the subsistence department; the military stores were shipped from Newport, (Ky.) and received at Belle Fontaine sometime in the month of August.

Inter. 14. Referring to those two requisitions, and to the preceding one of 27th August, please state whether the provisions therein mentioned as intended for certain posts on the Mississippi, were part of the provisions furnished by Col. Johnson under the two requisitions mentioned by Col. Gibson in his deposition, or when, and by what means, procured?

Answer. I believe a part of those provisions for which transport was required on 27th and 31st August, and 21st September, was furnished by Col. Johnson, and know a portion of them was purchased by the subsistence department.

J. McGUNNEGLE.

DISTRICT OF COLUMBIA, }
Washington county, } ss.

On this 28th of April, 1820, personally appeared before the subscriber, a justice of the peace for the county aforesaid, Captain J. McGunnegle, who made oath, in due form of law, that the several answers to the aforegoing queries are true.

R. C. WEIGHTMAN.

GEORGETOWN, *26th April*, 1820.

DEAR SIR: May I ask the favor of you, in behalf of Commodore Rodgers, Mr. Walter Jones, and myself, now sitting as referees to settle an account of some importance between the Department of War and certain individuals, relative to transportation by steam boats; to inform me, if you have any information on that subject, what is the rate of insurance usually asked or paid on the hull and tackle of steam boats, on the waters of the Mississippi and its branches; by the trip or by time? Be pleased to be as particular as your recollection may enable you to be on the subject.

Very respectfully, your obedient servant, &c.

J. MASON.

CHANDLER PRICE, Esq.
Merchant, at the Union Tavern.

GEORGETOWN, (D. C.) *April 26th*, 1820.

SIR: I am glad to have it in my power to answer directly to the point your question, "What could good steam boats be insured at, navigating the waters of the Mississippi?"

C. Price & Morgan, the first named being myself, of Philadelphia, had occasion to inquire the premium of insurance on a first rate steam boat, built at Philadelphia, under their inspection, last year, propelled with an engine on Bolton & Watss' plan, of 80 horse power, to ply the waters of the Mississippi between New Orleans and Natches.

The insurance companies at Baltimore, with the exception of one, declined the risk, and that one would only take it, *free of average*, at ten per cent. for six months: the companies of Philadelphia, the same those of New York, declined entirely. At Boston the public offices declined, but private underwriters, it was believed, could be found, who were substantially good, to take all risks for fifteen per cent. for six months.

A greater premium would be required to navigate further up the river, in proportion to the distance; but, to navigate waters emptying into the Mississippi, with which the underwriters are totally unacquainted, I do not think the risk could be done at any premium whatever.

I am, respectfully, sir, your obedient servant,

CHANDLER PRICE.

General JOHN MASON.

CITY OF WASHINGTON, 4 *o'clock, April* 27, 1820.

DEAR SIR: I have this moment received your's of this morning. regret extremely that I cannot give you any detailed statement on

the points suggested. In a letter from my brother, on the subject of expenses, &c. he says, "I have employed at least $200,000 in steam boat navigation, besides what has been expended in building the Providence, say $30,000, which I have not brought into the calculation; at least $15,000 in keel boat navigation, $25,000 in provisions for men, $15,000 for extra outfits, besides constant extra wages, extra losses, heavy repairs, 350 citizens employed on high wages, varying from 150 dollars to 30 dollars per month for each person." These statements were made to embrace a period up to about the first of November, after which time I have no information; only I know that the crews remained up the Missouri with the boats, and those few who may have left them were on wages and expenses, having come down with messages for materials for repairs, &c. For other accommodations the expense has been very great, and I wish I had it in my power to give you every thing in detail. These things, from the nature of the case, must be left very much to the discretion and judgment of the arbitrators from the facts which have been submitted.

With great respect, your obedient servant,

RICHARD M. JOHNSON.

Commodore JOHN RODGERS.

[*Note.*—The letter to which the above is an answer, does not appear among the documents returned by the arbitrators.]

No. 11.

Award of the arbitrators appointed to decide on the claim of James Johnson for transportation on the Missouri river.

The compensation claimed by Col. James Johnson, under his contract, of the 2d December, 1818, with the quartermaster general, for providing the necessary transports for the expedition up the Missouri, having been referred to the determination and award of us, the subscribers, we have carefully examined, and maturely weighed and considered, all the evidence, statements, and reasonings, laid before us by the parties respectively: and, after experiencing, from the peculiar nature of the claims in controversy, and the absence of many essential details, considerable difficulty in ascertaining any fixed and satisfactory *data* for liquidating the amount of those claims, we have at length decided upon an award, of which a summary view of the grounds is submitted.

The contested claims of Colonel Johnson are exhibited under five heads, and regard:

1st. The rate of freight to be allowed for the transportation actually performed by him.

2d. Compensation for detention of his boats, whilst waiting for their lading, and for the preparations necessary to the movement of the expedition.

3d. Compensation for detention of his boats up the Missouri, after they had delivered their cargoes.

4th. Compensation for freights given to other contractors, whilst he claimed an exclusive right, under his contract, to furnish all the transports required for the expedition.

5th. Compensation for depreciation of steam-boat-property on his hands.

I. For liquidating the rate of freights, the contract purports to give the *basis* of the requisite calculations. The basis, however, is compounded of terms, not only requiring extrinsic evidence to ascertain and reduce them to definite *data* of calculation, but that evidence must necessarily be the result, in a great measure, of conjecture and opinion. The desired end is "*a reasonable compensation.*" The process, by which we are to arrive at it, is by "taking into consideration the hazard attending the navigation of waters at points so distant, and heretofore unexplored by such *mode of navigation*, [meaning steam navigation] and the *ordinary rates* of transportation, as a *basis.*" As was, in some measure, to have been expected from the nature of the subject, the voluminous mass of evidence produced in the case, notwithstanding the respectable sources from which it comes, presents a very perplexing contrariety: not so much in the mere facts asserted by the witnesses, as in the mixed conclusions of fact, inference, and opinion, upon which the comparative merits of the evidence, on each side of the question, principally turn.

The contractor has collected a large and impressive body of evidence, entitled to high credit, as well from the general character of the witnesses as from their extensive means and opportunities to acquire accurate information, and their competency to form a discreet judgment, which tends to establish a rate of freight from St. Louis to the Council Bluffs, at from eighteen to twenty cents *per pound.* The facts and calculations by which they arrive at that conclusion are given very much at large; and, allowing its full force to their apprehension of the perils and difficulties opposed to steam navigation up the Missouri, their highest estimate, of twenty cents per pound, would appear to be very moderate: for assuming that a steam boat can perform a trip from Louisville to New Orleans, and back, in the same time that it would take her to perform a trip from St. Louis to Cow Island, which is little more than two thirds the distance to Council Bluffs; and that the difficulties and dangers, opposed to steam navigation on the Missouri, are four times as great as on the Mississippi; a rate of freight on the Missouri, as high as the Council Bluffs, four fold that on the Ohio and Mississippi, might be inferred. It appears, however, to be very satisfactorily proved that the natural and permanent, as well as adventitious difficulties and dangers opposed to steam

navigation, are far greater on the Missouri than on the Mississippi; and that they increase and multiply in a progressive ratio as the navigation ascends. The greater momentum of the current; the shoaliness of the water; the obstruction of the channel by more numerous and more dangerous sand bars, snags, and planters; the peculiar and destructive injuries sustained by the boilers and other machinery of steam boats, from the greater quantity of mud and fine sand suspended in the current of the Missouri; are enumerated as the principal disadvantages of that river over those of the Mississippi.

On the other side, it is supposed that certain *data* are fixed and determined, by which the constituents of the basis given by the contract may be reduced to certain and definite terms; which furnish an estimate of six and three fourths cents per pound for the "*rate of transportation;*" and an allowance of ten per cent. upon the cost and outfits of the boats, (valued at $190,000,) for the "hazard."

The facts from which these opposite conclusions are drawn, being supported by evidence equally respectable on either side, in all the requisites of character and intelligence; nothing is left for us but to compare and weigh the opposite estimates of the respective witnesses and parties: so as to determine the relative merits of the principles assumed as the basis of calculation on each side; and the accuracy of the deductions drawn by each from the facts proved.

The estimate of six and three fourths cents per pound proceeds entirely upon the postulate, that the "*ordinary rates,*" mentioned in the contract, refer to the transportation by common keel boats on the Missouri, as high up as the usual course of trade and navigation had been pushed at the *date* of the contract; and that such rates were only to be extended in the exact ratio of the distance above. Thus the freight from Belle Fontaine to Fort Osage (being the highest point to which there had been any established intercourse or rate of freight prior to the year 1819) is assumed as at the rate of three cents per pound; the distance to Fort Osage as three hundred and twenty miles; and to the Council Bluffs seven hundred and twenty miles; and then, by the simple rule of proportion, the freight to the latter place is found to be six and three fourths cents. Then, to compensate for the extraordinary hazard, the value of the risk is supposed to be determined by the proportion of boats usually lost in the ordinary course of navigation up the Missouri, which, in this case, is found to be one in ten; and from thence an estimate of *ten per cent.* for the risk is deduced.

The objections against the application of such tests, to the actual state of the case, are numerous and insuperable.

1st. The mere *ratio* of the distance can, by no means, be admitted as the sole rule. There must be an immense and incalculable difference between penetrating through a vast wilderness, to the remote and untraversed regions washed by the waters of the upper Missouri; and navigating, by a well known and familiar route of well established intercourse, from one military post or settlement to another, on the same river, and only three hundred and twenty-five miles apart.

Tis obvious that there must be a progressive increase, in an incalculable ratio, of all the ordinary and extraordinary difficulties and dangers incident to the navigation of the river, as the accustomed channels and land marks, and the chances of intercourse with bordering posts or settlements, and with other navigators, are left behind in the ascent. This applies, with peculiar force, to steam boats; to which, from the artificial and complicated nature of their machinery, the aids and improvements of society and civilization are more necessary.

2d. The rule by which the risk has been estimated at *ten per cent.* is equally fallacious. The mere ratio of vessels usually lost, to those arriving in safety, is by no means the rule in mercantile calculations of the value of sea risks; as will be evident from a comparison of the average losses among vessels crossing the Atlantic, with the ordinary rates of insurance. An average of one in ten is an extraordinary proportion of loss; and would probably very much enhance the price of insurance, beyond the ordinary premiums, upon voyages across the Atlantic. Besides, if one in ten be assumed as the average amount of losses between Belle Fontaine and Fort Osage, a much higher average must be assumed as the voyage extends upwards; upon the principle before adverted to.

3d. The most conclusive objection, however, against the assumed estimates, both of the ordinary rates of freight, and of the hazards of navigation between Belle Fontaine and Fort Osage, is, that those estimates are founded upon *data*, applicable exclusively to common keel boats; without any reference whatever to steam boats: whereas the precarious and hazardous experiment of ascending the Missouri in steam boats was now, for the first time, to be made. The numerous and important differences, in the relative risk and expense of transportation by steam boats, and by the ordinary keel boats, are marked and striking. A comparative estimate of the capitals employed in the two modes of navigation, and of the risks incident to either, may be furnished from the following *data*. According to the estimate of Captain M'Gunnegle, a keel boat of forty tons burthen, with a complete outfit, and all the current expenses of a voyage between St. Louis and the Council Bluffs, would cost $3,300; of which $1,000 only is to be reckoned for the prime cost of the boat itself. Then *five* of such boats would give an aggregate tonnage of two hundred tons, and an aggregate cost of $16,500; including the prime cost of the boat and all expenses of outfit, &c. Now, *one* steam boat of two hundred tons burthen, with a complete outfit for the same voyage, would cost, at a moderate estimate, three times as much as the *five* keel boats; and her daily expenses and wear and tear, whilst in motion, are still more in proportion. Then if she be employed in a navigation, the intrinsic or adventitious difficulties of which so impede her course, that her voyage consumes as much *time* as that of a common keel boat; and if she be paid no higher rate of freight, it will be obvious that she can earn, in a given time, no more freight than the five keel boats; whilst the actual capital employed is as three to one; and the current expenses,

and wear and tear, are in a still higher ratio. The relative hazards, incident to the two modes of navigation may be estimated upon the same principles. The prime cost of five keel boats, of forty tons burthen each=two hundred tons in the aggregate, would be $5,000, exclusive of outfit and current expenses; whilst that of one steam boat of two hundred tons burthen, with all the machinery complete, but exclusive of the ordinary outfit and incidental expenses, would be at least $30,000. Then the cost of one steam boat being *six* times as much as that of *five* keel boats; a loss of *one* out of *ten*, or *ten per cent.* in steam boats, would be equivalent to a loss of *six* out of ten, or *sixty per cent.* in keel boats. Tis, moreover, material to be considered that the delicate and complicated machinery of a steam boat is exposed to injury from manifold accidents and causes of destruction, from which the simple and cheap apparatus of a common keel boat is exempt. Whatever benefits the proprietors of steam boats, and the shippers of goods, may reciprocally derive from the greater expedition, or other advantages of steam navigation, in situations and under circumstances favorable to that mode of transportation; so as to compensate such great investments of capital, and such heavy disbursements for the current expenses of the voyage; tis certain that no supposition of any such redeeming benefits can find a place, in the practical result of the experimental voyage undertaken by Col. Johnson, for the sake of the single expedition up the Missouri. When, to all this, tis added that the contract looked to the contingency, and that the contingency has actually happened, of the contractor's being obliged to resort to *both modes* of transportation, for the same cargo and the same freight; at once to expend all the capital, and incur all the hazards and labors, ordinary and extraordinary, of providing and experimenting upon both modes of transportation; and, finally, to transship his cargoes from steam boats to keel boats in the midst of the voyage: it will then be more evident how inadequate a criterion is to be obtained from the ordinary freights and risks of keel boats, for the first three hundred and twenty-five miles of the Missouri.

We had therefore little hesitation in rejecting the proposed criterion; but have had more difficulty in adopting another perfectly satisfactory to our own minds.

We perceived from the tenor of the contract that it was projected upon the just and patriotic principle of encouraging a most interesting and meritorious enterprize; which, whilst it opened the prospect of multiplying and extending the necessary facilities of military communication, most usefully subserved the purposes of civilization and interior commerce; without transcending the proper and legitimate sphere of military discretion and expediency. The intention, in case of failure from insuperable obstacles, to shield the individual adventurer in that useful enterprise from the ruinous consequences of throwing the whole burthen upon his unaided resources, is also obvious. We have therefore earnestly endeavored to discover the true principle upon which the contractor should be merely renumerated for the inevitable expenses and labors incurred by the attempt; and

the possibility avoided of abusing the just and liberal spirit in which the contract appears to have been conceived on the part of the government. Having carefully adverted to all the established rates of *steam boat* freight on the western waters, at the *date* of the contract; which both parties agree is the *time* when the rate is to be ascertained; we have conformed our estimates, as nearly as practicable, to calculations founded upon the ratios of the distances, of the times necessary to perform the different voyages, and of the difficulties and hazards incident to them; correcting the estimates of the witnesses where they appeared conjectural and exaggerated; and reducing them to the standard furnished by the practical result of the voyage up the Missouri. The allowance for transportation upon which our estimates have at length settled, as reasonable under all circumstances, is:

1st. For all the cargoes shipped at the mouth of Missouri, St. Louis, or Belle Fontaine, either on board steam boats or keel boats for the Council Bluffs, an average freight of sixteen and one quarter cents per pound.

2d. For transportation of troops on the same voyage, fifty dollars for each passenger.

II. 'Tis next to be ascertained whether any, and, if any, what compensation is due for detention of the boats. Upon this point a material difference subsists between the parties, on the true construction of that clause of the contract, which gives "such reasonable and further allowance as may be equitable and just, if, in the arrangements and operations of the government, the steam boats should be detained in their destination for the want of concentration of the articles, &c. to be transported, *or otherwise*, and not imputable to the negligence of James Johnson." The construction by which the phrase, "*or otherwise*," is restricted to intend merely other instances of detention originating "in the arrangements and operations of the government;" and which denies the obligation to compensate any detention but such as is referable to "the arrangements and operations of the government," would have been conclusive, but for the *exception* of the contractor's *negligence*. That could by no possibility have been caused by "the arrangements and operations of the government;" and therefore gives the phrase, "or otherwise," to which alone it can be intended as an exception, the sweeping effect of an antithesis to the first hypothetical cause of detention, viz: "the arrangements and operations of the government." Then the only question is, whether the detention charged be "imputable to the *negligence*" of the contractor?

The instances of negligence imputed to him consist of alleged breaches, both of the identical contract by which he had undertaken to provide certain transports for the expedition, and of a preceding contract with the former Secretary of War, to supply the necessary subsistence; and of another contract with the quartermaster general, to transport certain military stores from Pittsburg. 'Tis clear that we have no authority, under the terms of the present submission,

to take cognizance of the breach of any contract, but the identical one, from which the present controversy arises; any further than as the breach of another contract of the same party shall appear to have been the *operative cause* of the detention in question. Upon these principles we proceed to examine the several defaults charged upon the contractor.

1st. The first is his failure to have the two steam boats at St. Louis by the 1st March, as required by his contract with the Quartermaster General; *time*, it is said, being of the essence of the contract. Upon an impartial view of all the circumstances, however, we find our minds impelled to the conclusion, that the omission to produce those transports at the day, was merely a formal, and not a substantial transgression of the contract; and that, in the actual state of things, it was beneficial to the public, by saving a heavy additional charge for detention, in waiting for the ulterior preparations of the expedition; which could not, by any possibility, have been ready, agreeably to existing arrangements, by the first of March. The main body of the troops who were to compose it, only commenced their march from Plattsburgh, on Lake Champlain, to Belle Fontaine, on the Missouri, after the middle of March, and arrived on the 7th June: the provisions intended for their subsistence on the expedition, were only required to be delivered on the 21st March and 1st May: the clothing, munitions of war, ordnance and hospital stores, stated to have been indispensably necessary to accompany the expedition, and to be distributed, with the provisions, among the transports, did not arrive till the 19th of June; and some of them still later. The whole amount of tonnage requisite for the expedition is estimated at about 1,200 tons; from 21 to 26 days before the troops were concentrated at St. Louis, the contractor produced two steam boats capable of transporting something more than 200 tons; which left about 900 or 1,000 tons of transport to be still provided; for which the contractor was under no requisition whatever; and which there were no orders, nor any competent authority to have provided, by the quartermaster's department, or otherwise, until Colonel Atkinson's arrival, a few days in advance of his regiment, in June. Even then the contractor does not appear to have been under any requisition for additional transport; and if he had, he could not have been placed in default, for non-compliance, till thirty days thereafter. On the 19th June he brought up a third steam boat, making the aggregate amount of cargo for which he had transports, between three hundred and four hundred tons; leaving a deficit of tonnage to be provided by the quartermaster's department, between eight hundred and nine hundred tons. That department appears to have been solely relied upon to supply the deficient tonnage; the contractor, as far as we can understand, being still under no requisition. The greater part of the transports, furnished by the department, consisted of sixteen boats belonging to the public; eight of which were brought by the troops from Pittsburgh on the 7th June, and the other eight were afterwards sent down from Camp Martin, from four hundred to five hundred

miles up the Missouri; and those boats had still to undergo considerable alterations and improvements; which were completed only a day or two before the expedition actually moved, on the fourth and fifth July. On the eighth June, according to Col. Atkinson's evidence, he informed the contractor of the arrival of the sixth regiment; and that the expedition would be *ready to move* as soon as *transportation* and provisions were furnished. If this was meant as a requisition for additional transports, the contractor would have had till the eighth of July to comply with it; which was three days after the expedition sailed. It imports that the "transportation" was not then ready; but 'tis understood that the quartermaster's department alone was looked to for all the additional transport wanted prior to the departure of the expedition. From this view of the facts, it appears, that if the two steam boats had been produced at St. Louis on the first of March, according to the letter of the contract, they would have been more than three months in advance of the other preparations for the expedition.

2d. The next charge is for negligence in not having transported and delivered certain military stores in the Jefferson steam boat until the 19th of June; and that the expedition could not have moved without those stores. The transportation of those articles was verbally agreed upon between Colonel Johnson and the quartermaster general; they were taken on board some time in April at Pittsburg; and the boat, having broken some of her machinery, was obliged to stop something upwards of one hundred miles from St. Louis, where she lay several weeks before she was repaired and brought up. But it seems to us that there is no ground for this charge; because no day was fixed by the verbal contract for the delivery of the stores; and the accident, by which the boat was arrested on her voyage, does not appear to have been "imputable to the negligence" of the contractor. Other reasons might be urged, but these seem conclusive.

3d. The third charge of negligence is the breach of his contract, of the sixth of December, 1817, to furnish subsistence. The only question upon this head, is, whether the failure to deliver the provisions on the *days* required, or to deliver the *quantity* required, *actually operated* a delay of the expedition. Considerable delays in the delivery of the provisions, after they arrived, took place in consequence of a misunderstanding between the contractor and the commissary, as to the mode of receiving them: and it is made a question, whether the commissary had a right to enforce upon the contractor the duty of *resalting and repacking*, as a preliminary to *inspection and delivery*. The contract under which they were actually delivered does not even require *inspection*, as a precedent condition to the receipt of the provisions; but such inspection may at any time afterwards be called, upon suspicion of unsoundness. If previous *inspection* had been required (and the parties seem to have conceded the propriety of such an inspection,) we are still clear that *resalting* and *repacking* formed no part of the process either incidentally or otherwise; and that, if

the commissary thought it prudent to subject the provisions to that process after they had passed inspection, it should have been done at the sole expense of that department. The contractor fulfilled his duty when he delivered provisions sound and merchantable *at the time* of inspection; and in such order as to pass a regular inspection. It has been surmised that as Colonel Johnson failed *at the day*, the commissary had a right to reject the provisions altogether, or to receive them upon condition. But the discussion of that abstract question is unnecessary; because the party had not, in point of fact, availed himself of the supposed option to declare the contract forfeit, and refuse to receive the provisions. No order had been issued to purchase on *account and risk* of the contractor; and when the provisions were *received*, it was done *under* the *contract*. Colonel Atkinson, in his letter to the Secretary of War, as late as the 11th of July, still recognizes the contract as open; and expresses a confidence that Colonel Johnson will still *fulfil it*. We are moreover of opinion, that if the provisions had been received by the commissary immediately as they were offered by the contractor, and salt and every other preparation made for resalting and repacking, the whole of that process, and of inspection might, with activity and diligence, have been completed by the time the troops arrived in June. We are, also, of *opinion*, that the provisions should have been immediately received, either on board the boats or in the public storehouses, (as either was most convenient,) subject to inspection: and that, in such case, neither the boats, (which were chartered to government in terms equivalent to a chartering of the whole reach and burthen,) nor the provisions, would have been liable to any attachment at the suit of individuals. Both the provisions and the freight of the boats had been paid for in advance, either in the whole or in part: and the act of delivering the provisions, subject to inspection, and of placing the boats under the orders of the Quartermaster General, would have completely withdrawn them from the jurisdiction of the civil power. But the evidence is deemed to be conclusive against the supposition of the failure of the subsistence-contract, either as to *time* or *quantity*, having any *practical effect* or *operation* upon the movement of the expedition. Col. Atkinson would never have suffered so momentous an expedition to languish, an instant, for any such cause: he would, without hesitation, have ordered purchases of provisions; which were plenty and cheap at St. Louis and up the Missouri: and he very distinctly expresses his determination to that effect in his correspondence with the Secretary of War. So confident is he of always having it in his power to purchase, when necessary, that he recommends, as a general system, the purchase of supplies, through the commissary's department, up the Missouri, instead of drawing them from Kentucky. Nothing can be clearer, from Colonel Atkinson's correspondence, than that it was no part of his plan to delay the expedition for want of provisions. He depended upon their arriving at St. Louis, and being pushed up after him, as soon as they arrived, in the course of the summer; and, if that failed, of purchasing up the Missouri. (See his letters of the

11th July, from St. Charles, and of 4th August from Chariton.) Indeed it seems that ninety tons of what he had on hand, were left behind for want of transports, and afterwards sent up by the deputy quartermaster. The only addition to the provisions on hand, which were peremptorily required before the expedition moved, was the eight hundred barrels of flour; which were immediately purchased and sent up by the contractor.

4th. The last ground, upon which it is supposed that the cause of the detention may be thrown upon the contractor, is, that his boats were not ready, on account of the necessity to undergo certain repairs. On the 24th of May, he reports his boats, to Col. Chambers, as ready to go up at a minute's warning; and repeats the same in a letter to Gen. Jesup on the 26th. The witnesses, who were persons officiating in various capacities on board the boats, and who had the best opportunity to judge, state, positively, that all the boats could have been got in readiness for the expedition at any time within forty-eight hours after their arrival at St. Louis, The gentlemen, who visited the boats from the garrison, observed sundry repairs going on, the greater part of the time they lay in port. But this is by no means inconsistent with the statement of the other witnesses: for, in the first place, it is not positively stated by the gentlemen, whether those reparations were such as would have made it necessary to keep the boats in port; and, in the next place, a crew, having the prospect of a long and inevitable detention in port, for other reasons, may set about many repairs not essentially necessary; or they may postpone those that are so. The postscript of a letter from Col. Johnson to Col. Atkinson, of the 8th June, (annexed to the deposition of the latter,) has been understood to say that his boats would not be ready for a week; but, a more careful examination of the letter will shew, that it is the *inspection*, *resalting* and *repacking* of the provisions, he speaks of: and so far from stating the boats were not ready, he states directly the contrary; for he says "nothing but *that* [meaning the inspection] prevents the Expedition and Johnson from sailing at this time:" and, having those two boats ready, he fulfilled his contract.

We are, therefore, satisfied that the whole delay, preparatory to the movement of the expedition, was necessary to perfect those "arrangements and operations of the government," mentioned in the contract; and was not "imputable to the negligence" of the contractor.

Both parties concurring to place the claim for the detention up the Missouri, upon the same footing as that *below*, nothing remains but for us to assess an equitable and just allowance for the detention at both points. Then, for the demurrage below, of the two steam boats, the one for forty days and the other for thirty-six days, after a proper allowance for lay-days, we award the sum of five thousand eight hundred and seventy-four dollars thirty nine cents: in which our estimate includes nothing but the actual expenses, wear and tear, and loss of time; throwing out all allowances for *risks;* which we suppose

compensated in the freight. And for the detention of the three steam boats, above, about four and a half months; after making due allowance for the actual expenses, the loss of time and employment, the wear and tear, and the risk of wintering in so exposed a situation; we award the further sum of forty-one thousand two hundred and seventy-five dollars and thirteen cents.

Of the two remaining claims set up by Colonel Johnson, we deem it unnecessary to say more, than that there is, in our opinion, no case made out to found any award; either for the possible profits which he might have made, if the whole transportation of the expedition had been given to him; or for the depreciation of steam boat property on his hands.

JOHN RODGERS,
J. MASON,
W. JONES.

Washington, 8th May, 1820.

DEPARTMENT OF WAR, *June* 30, 1820.

GENTLEMEN: Different constructions having been given to your award, in the case of Col. James Johnson and the Quartermaster's Department, on the points referred by the parties, it is thought proper to request your interpretation of its meaning.

The construction given by the Quartermaster's Department to the first article of your award, under the first point, is, that the full freight for 16¼ cents per pound for all cargoes shipped at the points enumerated for Council Bluffs, is to be allowed to Col. Johnson, and that he is to be charged with the payments made by the agents of the government completing the transportation of those cargoes to the point designated, which payments occurred in consequence of the failure of the boats.

The construction given to the second article of the award, under the first point, is, that the troops are to be paid for in the ratio of the distance actually transported, assuming fifty dollars for each passenger to the Bluffs.

The other party claims an exemption from the charges raised for payments made by the agents of the government in completing the transportation of the cargoes shipped to the point designated in the first article; and, under the second, fifty dollars for each passenger taken on board, without regard to the distance actually carried.

Will you favor me with your opinion on these points?

I have the honor to be, your's, respectfully,
J. C. CALHOUN.

To the Arbitrators in the case of
Col. Johnson and the Quartermaster's Department.

To JOHN C. CALHOUN, Esq.

SIR: We have revised our award, in reference to the two points mentioned in your favor of the 30th June, as requiring some interpretation, in order to apply the principles settled by the award, to the details of the account.

1st. Our intention was to fix upon an *average* rate of freight, applicable to both modes of transportation, by steam boats and keel boats. We also took into consideration one point in controversy, produced by the commissary's boats having taken some part of the cargo of one of the contractor's steam boats, (if we recollect aright, the Jefferson,) against the will of the contractor. We were satisfied, upon the evidence, that there was no necessity for such interference; and, consequently, that the contractor was entitled to freight, precisely as if he had been permitted to complete the transportation of the entire cargo. It was with a view to cover that particular case, and to avoid any ambiguity arising from that circumstance, that we awarded freight "for all cargoes *shipped* from Belle Fontaine, &c. *for* Council Bluffs:" not restricting it to cargoes actually *transported* all the way from the one place to the other.

2d. As to the allowance for passage of troops, we were not apprised of any objection or difficulty. The charge was not made the subject of discussion or objection before us; and we intended to pass it precisely in the terms it was made. We had no intention to limit it to any actual distance, but simply to refer to the general description of the voyage upon which the freights were to be calculated; and, of course, no reduction of the allowance, according to any ratio of the distance, was in our contemplation.

In giving these explanations, we have not thought ourselves authorized to advert to any new points or modifications of the case, not discussed or brought into view under the former submission. We have, accordingly, confined ourselves to a mere exposition of what was the actual intent of the arbitrators at the time of delivering their award.

We have the honor to be,
With great respect,
Sir, your obedient servants,
JOHN RODGERS,
J. MASON,
W. JONES.

No. 12.

Settlement of James Johnson's Claim, for transportation, under the Award of the Arbitrators.

STATEMENT of moneys advanced, supplies furnished, and transportation paid for, by the Quartermaster's Department, on account of the contract of Col. James Johnson, for transportation up the Missouri and Mississippi rivers, and on the Ohio to Belle Fontaine; also, of the sums passed to his credit on those accounts, as far as the accounts have been rendered and settled, viz:

Amount of moneys advanced to James Johnson on warrants drawn by the Secretary of War -	$ 314,362 00
Amount of moneys advanced to him by the quartermaster at St. Louis - - - -	3,350 00
Amount of advances made by the quartermaster at Pittsburgh, on account of transportation on the Ohio river to Belle Fontaine - - - - - - - - -	11,425 87
Amount of provisions received by the boats' crews from the subsistence department, and of their transportation, at the same rate as is allowed to Col. Johnson - - - -	7,481 14
Amount of transportation by keel boats paid by the quartermaster's department, for transporting from the steam boats on the Missouri - - - - - - - -	14,969 28
Total amount of debits - - - - - - - -	351,588 29

On account of which he has received the following credits, viz:

For Transportation on the Missouri.

For transportation of 433,349 pounds of provisions and stores in the steam boat "Expedition" and keel boats, from the mouth of Missouri to Council Bluffs, at 16¼ cents	$ 70,419 21
Ditto of 102 troops from Belle Fontaine on the way to the Council Bluffs, at $ 50 each	5,100 00
Ditto of 177,600 pounds of provisions and military stores on board the steam boat "Jefferson," from the mouth of Missouri to Council Bluffs, at 16¼ cents - -	28,860 00
Ditto of 86 troops, at $ 50 each - - - - - - -	4,300 00

Ditto of 113,714 pounds of provisions and military stores shipped on board the steam boat "Johnson," from the mouth of the Missouri to Council Bluffs, at 16¼ cents		18,478 52
Ditto of 86 troops, at $50 each - - - - - - - -		4,300 00
Ditto of 100,643 pounds of provisions and military stores on board the keel boat "Eliza" at Belle Fontaine to Council Bluffs, at 16¼ cents - - -		16,354 48
Ditto of 66,982 pounds of provisions on board the keel boat "Sally," from on board the Jefferson steam boat, for Council Bluffs, at 16¼ cents - - - -		10,884 57
Ditto of 50,388 pounds of provisions on board the keel boat "Macedonian" at Belle Fontaine for Council Bluffs, at 16¼ cents - - - - -		8,188 05
Ditto of 105,005 pounds of provisions on board the keel boat "Chariton" at St. Louis, for Council Bluffs, at 16¼ cents - - - - - -		17,063 31
Ditto of 56,286 pounds of provisions shipped from St. Louis for Council Bluffs, at 16¼ cents - - - - - - - - -		9,146 47
For detention of steam boats, per award of arbitrators - - - -		47,149 52
		240,244 13
To which add this sum paid by the quartermaster's department, for freight performed by keel boats hired by the quartermaster, to take part of the loading from steam boats on the Missouri, allowed to the credit of Col. James Johnson, in consequence of the explanation of the award of the referees - - - - -		14,969 28
Total amount of transportation on the Missouri - - -		255,213 41

Transportation on the Mississippi, viz:

For transportation of 44,375 pounds of provisions on board the keel boat "General Wolf" at Belle Fontaine for Fort Crawford, at 3 cents	$3,442 05	
Ditto of 59,814 pounds of provisions on board the steam boat "Hornet" at Belle Fontaine for Fort Crawford, at 3 cents - - -	1,794 42	

For transportation of 75,950 pounds of provisions shipped on board the keel boat "Tuscarora" at Belle Fontaine for Fort Crawford, and continued to St. Peters, at 6 cents - - - - - -	4,557 00		
Ditto of 64,200 pounds of provisions on board the keel boat "We Go" at St. Louis for St. Peters, but delivered at Fort Crawford, at 3 cents -	1,926 00		
Ditto of 3,723 lbs. of clothing from St. Louis to Fort Armstrong, at 3 cts.	74 46		
Ditto of 30,220 pounds of provisions from Missouri to Praire du Chien, at 3 cents - - - - - - - -	906 60		
Ditto of 26,750 pounds of provisions from St. Louis to Fort Armstrong, at 2 cents - - - - - - - -	535 00		
Ditto of 25,488 pounds of provisions from St. Louis to Fort Armstrong -	509 76		
Total amount of transportation on the Mississippi - - -		11,645 29	
Transportation on the Ohio, viz:			
Transportation of 207,422 pounds of military stores from Pittsburg to Belle Fontaine, at 2 cents - - - - - -	4,148 44		
Ditto of 208 officers and privates, at $ 12 each - - - -	2,496 00		
Ditto of 174 tierces of clothing from Shippingport to St. Louis, at $ 6 -	1,044 00		
Ditto of 3,300 pounds of medicines, at 2 cents - - - -	66 00		
Ditto for conveying a boat load of stones from the head to the foot of the Falls of the Ohio - - - - - - - -	125 00		
For two patent steam cooking stoves, taken for the use of the troops -	290 00		
Ditto for 500 pounds of rope - - - - - -	187 50		
		8,356 94	
Balance now standing to the debit of Col. James Johnson - - -			275,215 64
			$ 76,372 65

Authority on which the foregoing credits have passed to the account of James Johnson—
1st. Copy of the contract between the quartermaster general and James Johnson.
2d. Extract of the award of the arbitrators.
3d. Copy of the additional explanatory award, all directed to be received by the Secretary of War, as authority on which the credits have been passed.

TREASURY DEPARTMENT,

Third Auditor's Office, December 4, 1820,

PETER HAGNER, *Auditor.*

[redacted]

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